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# XLIII.—THE "ERYTHEMA GROUP" OF SKIN DISEASES *

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There undoubtedly exists a close clinical, pathologic and etiologic relationship between the following conditions: urticaria, erythema multiforme, dermatitis herpetiformis, pemphigus, purpura and certain types of cutaneous gangrene. These so-called clinical entities should probably be included in one group on account of the fact that various etiologic factors may cause the same type of these eruptions or any one etiologic factor may cause varied types of these eruptions. It is also highly probable that certain types of lupus erythematosus disseminatus and the scarlatiniform or toxic erythemas should be included.

The chart gives a graphic concept of the relationship of the various elements of this the most important group in the whole domain of dermatology.

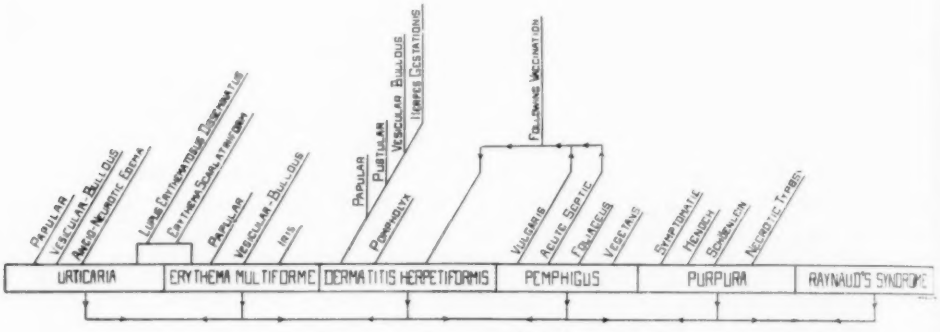
Osler was the first to attempt to show, under the name of the Erythema Group, the relationship of some eruptive phenomena to each other and also their intimate relationship to underlying constitutional conditions.

The term "erythema," meaning a blush, is loosely applied in dermatology to express, as Crocker says, "the clinical aspect of acute congestion," and may be defined as "redness of the skin which disappears for a moment upon pressure." The term "erythematous" is used as a descriptive adjective in many diseases of the skin, such as erythematous eczema, etc. When the word "erythema" is used as a noun, it generally implies congestion or inflammation, and since the days of more refined microscopic technic, we know that it is difficult to draw a dividing line between congestion and inflammation, or to tell just where the former ends and the latter begins. One of the clinical symptoms of inflammation is red-

* Studies, observations and reports from the dermatological departments of the Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, St. Louis, Mo., U. S. A., service of Drs. M. F. Engman and W. H. Mook.

ness and whether the color may be removed by pressure or not merely implies the degree of the process.

To conform to the Hebraesque classification, hyperemia is always associated with erythema and, of course, congestion. In many of the textbooks, if not in all of them, the types which we are about to discuss come under the classification of "hyperemias-congestions," but modern histology and pathology compel us to wander somewhat from the classic interpretation of these phenomena. This great class of diseases is founded on the pathologic fact of hyperemia, and the hyperemias are said to be active or passive, the active being synonymous with erythema, the passive with more or less lividity of the skin in which it is assumed that inflammation has probably not occurred because the clinical condition is usually completely relieved. In fact, all of the diseases usually discussed




The "Erythema Group" of skin diseases.

under the heading of "hyperemias or congestions" are associated with inflammation. Therefore, we believe it to be a gross error and adverse to all the teachings of modern dermatology founded on histopathologic investigation, to teach that the hyperemias should occupy a distinct pathologic position. They should be classed with the well-known inflammatory and exudative conditions.

Founded on the foregoing facts, we shall discuss these diseases as a class because they are all probably the result of similar etiologic influences, and the names attached to them to distinguish one type from the other merely describe clinical differences. The underlying changes in the skin are all fundamentally and pathologically the same, merely differing in the degree of the process induced.

## CONDITIONS INCLUDED UNDER ERYTHEMA

But, before we can logically discuss this important subject, we must first present in brief outline its history, which, we believe, will explain the usual position it occupies in dermatologic literature, especially in

that of textbooks. It must be remembered that the usual textbooks employ the pathologic classification attempted by Hebra, which without doubt has given to dermatologic authors a splendid rudder to guide them, not only in their investigation of disease, but in their written thoughts. However, one is compelled to abandon this method if one is to discuss the erythema group in the light of modern investigation.

Colcott Fox [1] in a masterly article divided active and congestive hyperemia, or erythema, into: (1) hyperemia due to local irritation (so-called idiopathic), and (2) hyperemia due to internal causes (symptomatic). In the first group he includes hyperemia due to chemical rays of the sun, roentgen rays, electric lights, currents of hot or cold air, hot or cold baths, erythema pernio, erythema venenatum, erythema traumaticum, erythema intertrigo, erythema from friction and mechanical causes, with all of which we shall not concern ourselves, as they should not be included in the erythema group as we classify it.

This brings us to the second group, or the active hyperemias or erythemas due to an abnormal or poisonous body or some micro-organism brought to the skin through the blood stream. Hebra, in 1854, was the first to attempt to group the objective symptoms of erythema.[2] Hebra learned from experience that the forms of erythema bullosum portrayed by previous writers as distinct types often changed their objective symptoms from one form to another, and occasionally several types would coexist in the same person. He, therefore, grouped what was previously called erythema papulatum, or tuberculatum, or annulare, or iris, or gyratum, under one head, as these forms appeared to be types of the same process. To this group he gave the name of erythema multiforme.

It has been a serious fault, we believe, that subsequent writers have adhered so closely to the dicta of Hebra, and it is only recently that the conception of this group has been broadened to include conditions that do not closely conform to these dicta. Lewin, in 1876, was the first to recognize fatal cases that had the appearance of an infection, and others were described by Uffelman. Kaposi and Schwimmer, although they widened the bounds of the affection, still insisted on adhering to a definite, self-limited type, always terminating in recovery, and even dermatologic textbooks of the present day adhere rather strictly to the conception that the term erythema multiforme should be applied to a distinct and definite entity as outlined originally by Hebra. Even in discussions on this subject before dermatologic societies, only a few appear to desire to broaden the scope of this process to include certain variant types which are associated with severe and not infrequently fatal constitutional symptoms.

1. Fox, T. Colcott, in Allbutt and Rolleston: System of Medicine, New York, The Macmillan Company **9**:246, 1911.

2. Corlett: J. Cutan. Dis. **26**:7, 1908.

We believe that we are indebted to Osler [3] for the best point of view of this group of diseases, as he has shown its relation to general medicine, and that the cutaneous symptoms are, in many cases, only a symptom of various constitutional conditions or diseases of the internal organs. However, attention had previously been called to this apparent relationship by Gibert, Rayer, Besnier and Doyon, and others, but not so forcibly as in the masterly series of articles by Osler.

Hebra wisely grouped erythema multiforme, erythema nodosum, roseola erythemas and urticaria under the one head of polymorphus erythema, believing, however, that they were several diseases, all of which were characterized by erythematous eruptions with exudation; but he did not seem to recognize, or rather, he made no mention of their association with joint pains or visceral manifestations, although he remarked their liability to relapse in the spring and fall.

Many observers have noted the evident close relationship that exists in the conditions described by Hebra as erythema multiforme and erythema nodosum. However, Lewin thought the conditions were the same disease, as also did Besnier and Doyon, and Stephen Mackenzie.

Since the original description of Schönlein, in 1829, of peliosis rheumatica, the close relation between certain purpuric conditions and the erythema group has been perceived. Especially was this forcibly expressed by Stephen Mackenzie, who called attention to its intimate connection with rheumatism. The latter included all kinds of erythemas in this category. Therefore, it was only a short stretch to show the connection between those visceral conditions associated with rheumatism and purpura, namely, endocarditis and other manifestations of general systemic infection, and objective phenomena seen on the skin in the form of certain erythemas or purpuric eruptions. As we stated before, several observers had noted this connection.

The syndrome described by Henoch, since called Henoch's purpura, which is characterized by the occurrence of gastro-intestinal crises and the appearance of a hemorrhagic type of exudative erythema, was the main link in the chain to connect this vast group; and it is probable that through its study by modern methods of investigation a proper understanding of the whole group will be attained. The article of Mackenzie [4] on the relationship of purpura rheumatica to erythema exudativum multiforme, quoted by Osler, is very instructive:

> I now come to the nosological position of purpura rheumatica. The prevailing view is that purpura rheumatica is a variety of erythema multiforme, and Schönlein's original description of this disease certainly is in accordance with this conclusion. With this view I do not altogether agree. I admit its very close alliance and that the various forms of erythema are almost as closely

3. Osler: Brit. J. Dermat. **12**:227, 1900; Am. J. Med. Sc. **127**:1, 1904.
4. Mackenzie: Brit. J. Dermat. **8**:116, 1896.

associated with rheumatism as is the form of purpura to which I would restrict the term purpura rheumatica. But, in erythema multiforme the hemorrhage is only incidental, while in purpura it is primary and essential, and in the majority there is no co-existing erythema. Still, in the small minority, we find some form of erythema co-existing. In erythema nodosum we see precisely the same thing. In the majority of cases we find the eruption limited to the nodose form, although more rarely we have other forms of erythema associated with it. Thus, admitting that erythema nodosum is a variety of polymorphic erythema, we recognize it as a distinct type. Some would go so far as to call it a distinct disease, but in this I do not concur. Similarly, I claim peliosis rheumatica, such as I have sketched, is a distinct clinical type which deserves recognition, and I have endeavored to indicate the class of cases to which I think the term should be restricted.

To summarize: Previous to this time of Osler's work, there was a group of diseases described by Hebra as polymorphic erythema which included erythema exudativum multiforme, erythema nodosum, roseola and urticaria, over which there has been a great deal of discussion as to whether or not these were types or symptoms of the same process. Then there were several groups called purpura in which hemorrhage occurred in the skin associated with intestinal crises or joint pains, which in many instances also presented some of the types of erythema multiforme, but each one was considered as a distinct disease.

Furthermore, Hebra (who still has many adherents, among them Adamson [5]) wished to retain the name erythema exudativum multiforme to indicate an eruption which has "its distribution upon the extremities, on the dorsal surfaces of the feet; in the more severe cases, but only in those, it may be observed on the forearms and legs, on the arms and thighs, and even on the trunk and face. It is, however, only in very exceptional instances that it attacks the regions last mentioned, and when it is found on them it invariably co-exists also on the backs of the patient's hands, where indeed this cutaneous disease generally first appears." The efflorescence consists of "flattened papules or tubercles of a dark-brown or brownish-red color, between lentils and beans in size. The number varies in different cases." He then describes how the slight lesions rapidly fade, leaving slight pigmentation, while in other cases they spread into rings (erythema annulare), or in concentric rings (erythema iris), or form gyrate or marginate figures by expansion and blending of the rings (erythema gyratum seu marginatum), and he believes that all of these are phases of the same affection. He also identifies the vesicular and bleb types with the herpes iris of previous writers. Hebra describes the subjective symptoms as trifling. He does not lay particular emphasis on any important complications or sequelae occurring in the train of these eruptions. The duration of the eruption is from one to four weeks.[5]

5. Adamson: Brit. J. Dermat. **24**:429, 1912.

At the present time we must break down this wall of Hebra and look at the subject in the broadest light because all of these so-called erythemas obviously belong to the same group, and for their proper understanding must be discussed as varied symptoms that may occur on the skin as the result of many so-called toxic conditions acting on the cells of the skin or as the result of embolic foci in the skin of certain known and unknown micro-organisms. A few writers have even gone so far as to include under the erythema group proper dermatitis herpetiformis and lupus erythematosus, because in certain rare instances they have been associated with cutaneous symptoms similar in their ensemble to the erythema group. We believe that there is probably some relationship, but we do not as yet fundamentally understand just what happens when toxins or analogous bodies are generated; and as yet there is no differentiation possible between a pure toxemia and embolic dissemination of micro-organisms. Therefore we should bear in mind the instances which seem to connect the processes named above with the erythema group, and we shall discuss them on that basis.

## CLINICAL FEATURES OF ERYTHEMA GROUP

Before discussing the clinical features of the erythema group, it may be of great assistance to their proper understanding to discuss some of the fundamental pathologic changes which occur in the skin to produce the eruptions. In the first place, the erythema group of skin diseases, as we have mentioned before, may be caused: by toxemia or by embolic dissemination of micro-organisms.

Any process that would allow the access of a toxic body into the blood stream may cause some type of these eruptions. This may be brought about by:

1. Ingestion of poisonous bodies; (*a*) drugs, such as iodin, quinin, barbital, etc.; (*b*) canned fish, spoiled meat, or other noxious food products; (*c*) shell-fish, strawberries, or other articles of food to which the patient may be sensitized.

2. The entrance into the circulation from the alimentary canal, usually from the intestines, of some poisonous body which may be formed by the action of certain organisms on foodstuffs (intestinal autointoxication); or there may slip by the intestinal mucosa certain poorly split-up protein bodies, which would act directly as poisons. Even erepsin may not successfully split these protein bodies into the proper amino acids in their passage through the wall, and thus allow them to enter the general circulation without proper preparation; on account of their molecular arrangement, they would then act in the same manner as the parenteral introduction of such substances. Whether this phenomenon is analogous to what is called sensitization or anaphylaxis is at present a question;

but we have enough evidence at this time to assert that such accidents as those mentioned above can occur and probably do produce phenomena that cannot be explained in any other way than through the modern application of the term sensitization.

3. Intermediary intoxication occurring in the process of metabolism as the result of protein synthesis or the synthesis of other foodstuffs improperly performed, or through the catabolic functions by which chemical bodies are made, acting as toxins directly through their poisonous properties or indirectly in their chemical "hook-up" as a foreign protein.

4. Parenteral introduction of foreign protein, which would encompass the at present mysterious and confusing phenomena of anaphylaxis and sensitization. However, it is certain that we often obtain grave phenomena associated with various types of the erythema group in eruptions produced by the injection of foreign protein to which has been given the name of serum disease by Pirquet, and is classed by him as a phenomenon of allergy. The phenomenon produced by these known foreign proteins do not differ materially from those eruptions belonging to this group which occur as the result of unknown toxins, or idiopathically.

5. The development of toxins through the invasion of the body by any micro-organism, under which may be included not only erythema and roseola eruptions produced and classified under the name of the specific exanthems, but also those eruptions which more properly belong to the erythema group, occurring either early in the course of the invasion or later in the course of the disease. These roseola-like eruptions are sometimes noticed in typhoid, influenza, scarlet fever, measles, roseola, smallpox, chickenpox, gonorrhea, syphilis, tonsillitis and many other infections either bacillar, coccic or protozoic. It is probable that the types of the erythema group produced under these conditions may be due to the parenteral introduction into the system of a foreign protein (the micro-organism), or they may be due to direct action of the exotoxins or endotoxins of the invading organism.

We have described the foregoing conditions and have described them in some detail in order to show that the erythema multiforme of the textbooks is the center or basic group from which this larger group of diseases extends. This is graphically shown in the chart.

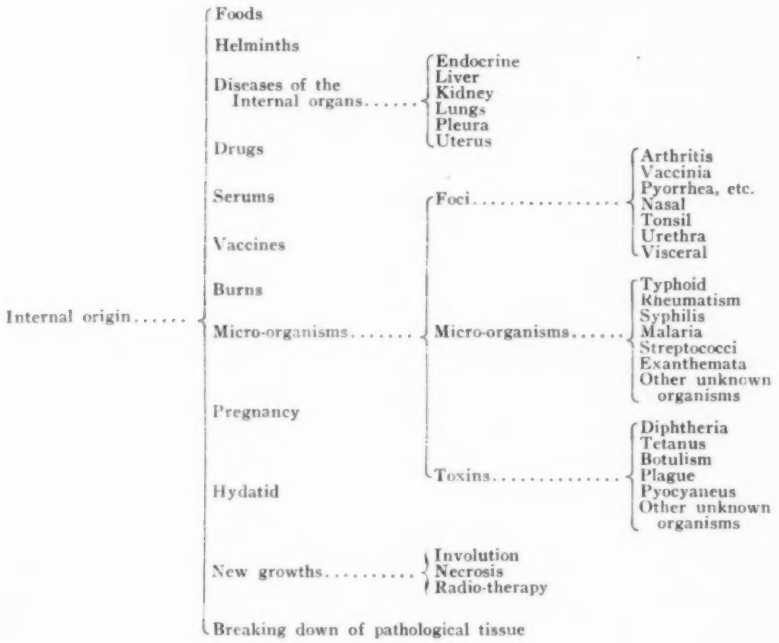
The histologic and physical phenomena seen in this disease are probably dependent on the action of the offending agent on the vascular endothelium at the site of the lesion. They are also dependent on the action on the perivascular tissues when this offending agent is allowed to escape from the vessels and exert its influence on the tissues in situ.

In this way toxemias or septicemias may produce the various types of lesions seen in the erythema group.

The agent or agents which may cause the phenomena usually do not act continuously but seem to come in periods or waves producing relapses. Thus at various times we may see during a course of many years several different types of this group appearing in the same individual. This is shown most clearly by Osler in his classical articles.

A child with an erythema multiforme or relapsing urticaria may harbor a virulent coccus which during the course of years makes excursions into the blood stream and produces at each excursion a different

*The Etiology of the Erythema Group*




type of the erythema group, ranging from urticaria through polymorphic erythema to purpura and even to gangrene.

The etiologic factors, any one of which may produce types of eruption of the erythema group, are graphically displayed as in the table which has been constructed from actual cases seen and studied in the wards of the Barnard Free Skin and Cancer Hospital, the Barnes Hospital and the St. Louis Children's Hospital and other hospitals to which we have had access and from cases culled from the literature on the subject.

These eruptions are therefore all "blood borne" or "humoral," the offending agent causing them being carried to the tissues of the skin by

the blood stream, either in the form of injurious chemical or toxic agents (toxemia) or by micro-organisms (septicemia). The offending agents from either one or more of the sources enumerated in the table may produce on the skin, when acting on its vessels or tissues, some type of any one of the eruptions thus classed in the erythema group.

# THE WASSERMANN TEST

## XV. THE EFFECT OF BISMUTH ON THE WASSERMANN REACTION IN PATIENTS UNRESPONSIVE TO ARSPHENAMIN *

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Several hundred references in recent medical literature testify to a widespread interest in the treatment of syphilis with bismuth compounds. The trend of clinical evidence indicates that these drugs are especially valuable in the treatment of patients who do not respond to arsphenamin and mercury. I shall consider the effect of bismuth on the Wassermann antibody in the so-called Wassermann-fast patients, who do not respond serologically to arsenic and mercury.

### METHODS OF WORK

The method of measuring the strength of the Wassermann antibody described in a previous paper [1] was followed. Determinations were made before, halfway through, and at intervals of four weeks over a period of twenty-four weeks after the completion of treatment.

*Bismuth.*—Three compounds of bismuth suspended in oil were administered by gluteal injection: (1) iodobismuthate of quinin; (2) a bismuthyl compound of an oxybenzoic acid, and (3) potassium bismuth tartrate with butyn. The iodobismuthate of quinin, which contains about 33 per cent. of metallic bismuth, was administered in doses of 0.2 gm., the equivalent of 0.067 gm. of metallic bismuth. The bismuthyl compound of an oxybenzoic acid was given in doses of 1 c.c., which contained from 0.05 to 0.06 gm. of metallic bismuth. The dosage of potassium bismuth tartrate, which is a basic potassium bismuth tartrate containing from 64 to 69 per cent. of metallic bismuth with the addition of an anesthetic, butyn, was 0.1 gm. or approximately 0.067 gm. of metallic bismuth. Of sixty patients who were treated with bismuth, eleven received iodobismuthate of quinin, twenty-two the bismuthyl compound of oxybenzoic acid and twenty-seven potassium bismuth tartrate.

The course of treatment varies with the three compounds. Twenty injections are recommended for iodobismuthate of quinin, twelve to fifteen for the bismuthyl compound, and from twenty-four to thirty for potassium bismuth tartrate. The average is about twenty injections, or

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* From the Evans Memorial and Boston University School of Medicine.

1. Belding, D. L., and Holmes, R. H.: The Wassermann Test. XI. The Effect of Mercurosal on the Wassermann Reaction, Arch. Dermat. & Syph. **9**: 459 (April) 1924.

the equivalent of 1.33 gm. of metallic bismuth, over a period of ten weeks. Since the active principle in these preparations is bismuth and the number of patients is too limited to permit adequate comparison, we have adopted arbitrarily on the basis of this average for a 68 kg. patient a standard dosage of 0.02 gm. of metallic bismuth per kilogram of body weight for a single course of treatment, or a weekly rate of 0.002 gm. for ten weeks. The majority of our adult patients received less than this standard.

*Patients.*—Of the sixty patients who received bismuth treatment, complete serologic records were obtained for forty-one adults and eight children. All patients had previously received arsphenamin and mercury, and thirty-five were definitely within the Wassermann-fast category. The latter group had been under quantitative serologic observations during treatment with arsphenamin for at least one year, and of these twenty-nine had never shown the slightest reduction in the Wassermann antibody. Of the adults, nine had no record of clinical syphilis, eleven previously had symptoms of early syphilis, eleven gave previous or present evidence of late syphilis, and ten showed neurologic invasion. With the exception of the patients with neurosyphilis and of three with vascular syphilis, the adult patients gave no evidence of active disease. The terms ex-primary, ex-secondary, etc., in Table 1 refer to patients who once had symptoms associated with these so-called stages.

## EFFECT ON THE PATIENT

The average dose of metallic bismuth for man is about 0.001 gm. per kilogram of body weight, which is one hundredth of the lethal dose for rabbits, according to Sazerac and Levaditi,[2] one one hundred and twenty-fifth according to Klauder,[3] and one fiftieth according to Hopkins.[4] The sterilizing dose, which is considered by the first two authorities to be one fourth or one fifth the maximum tolerated or sublethal dose, is about twenty-five times the average dose for man. The chief objection to bismuth appears to be the narrow range between the toxic and the sterilizing dose. However, Hopkins finds that a small dose, 2 mg. of potassium and sodium bismuth tartrate, which he designates as the minimum curative dose, produces definite therapeutic results in rabbits. Since the average dose for man is approximately equivalent to this minimum curative dose, the favorable clinical results of bismuth therapy are not surprising.

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2. Sazerac, R., and Levaditi, C.: The Therapeutic Action of Bismuth on Syphilis, Ann. de l'Inst. Pasteur **36**:1, 1922.

3. Klauder, J. V.: Bismuth in the Treatment of Syphilis, Arch. Dermat. & Syph. **7**:721 (June) 1923.

4. Hopkins, J. G.: The Antisyphilitic Action of Bismuth, J. A. M. A. **83**: 2087 (Dec. 27) 1924.

The absence of toxic effects in our patients was due to the use of a lower dosage than the standard, the total dosage averaging 86 per cent., and the weekly rate 59 per cent. Consequently, serologic improvement in certain patients may have been less than if a higher dosage had been employed.

*Local Reaction.*—The local induration following intramuscular injections of bismuth is more pronounced than the reaction produced by the soluble mercury compounds, and little, if any, greater than that produced by the salicylate and mercurial oil. It causes far less irritation than intramuscular injections of sulpharsphenamin or neo-arsphenamin. The iodobismuthate of quinin gave local reactions in 3.4 per cent. of 208

TABLE 1.—*Clinical Classification of Patients*

| Previous Symptoms | Children, Congenital | Adults | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Ex-primary | Ex-secondary | Ex-tertiary | Active Tertiary | Neurosyphilis | Latent Syphilis | Total |
| None | 6 | .. | .. | .. | .. | 3 | 9 | 12 |
| Chancre | .. | 4 | .. | .. | 2 | 1 | .. | 7 |
| Chancre and secondary skin | .. | .. | 1 | .. | .. | .. | .. | 1 |
| Chancre and vascular syphilis | .. | .. | .. | 1 | .. | .. | .. | 1 |
| Chancre and tertiary ulcer | .. | .. | .. | 1 | .. | .. | .. | 1 |
| Chancre and tertiary skin | .. | .. | .. | 1 | .. | .. | .. | 1 |
| Chancre, secondary mucous membrane and tertiary ulcer | .. | .. | .. | .. | .. | 1 | .. | 1 |
| Secondary skin or mucous membrane | .. | .. | 5 | .. | .. | .. | .. | 5 |
| Iritis | .. | .. | 1 | .. | .. | .. | .. | 1 |
| Interstitial keratitis | 2 | .. | .. | .. | .. | 2 | .. | 2 |
| Tertiary skin | .. | .. | .. | 2 | .. | .. | .. | 2 |
| Secondary and tertiary skin | .. | .. | .. | 1 | .. | 2 | .. | 3 |
| Bone and joint | .. | .. | .. | 2 | .. | .. | .. | 2 |
| Tertiary ulcer | .. | .. | .. | .. | 1 | 1 | .. | 2 |
| **Present Symptoms** | | | | | | | | |
| None | 4 | 4 | 7 | 8 | .. | .. | 9 | 28 |
| Optic atrophy | .. | .. | .. | .. | .. | 2 | .. | 2 |
| Cerebrospinal syphilis | 1 | .. | .. | .. | .. | 8 | .. | 8 |
| Vascular syphilis | .. | .. | .. | .. | 3 | .. | .. | 3 |
| Bone and skin | 1 | .. | .. | .. | .. | .. | .. | .. |
| Congenital stigma | 2 | .. | .. | .. | .. | .. | .. | .. |

injections, one half of which occurred in a patient who was sensitive to arsphenamin and mercury. A similar percentage was obtained in 320 injections of the bismuthyl compound of an oxybenzoic acid, principally in two sensitive patients. Potassium bismuth tartrate in 10 per cent. of 418 injections gave moderate or severe local reactions, and frequently produced slight indurations which did not materially trouble the patients. One patient who did not manifest any trouble from seventeen other injections developed a sterile abscess. In a few patients, an induration invariably followed each injection indicating individual local sensitiveness to bismuth treatment. Only two patients gave reactions sufficiently severe to interfere with the continuation of treatment, a finding which appears at variance with the opinion of several observers.

*General Reaction.*—In view of the numerous instances of bismuth poisoning in the literature, the toxic effects observed in our patients were surprisingly slight. Of the sixty patients, eleven showed evidence of bismuth intolerance, four of whom presented marked symptoms. Of these four patients, three were also sensitive to arsenic and mercury, and evidently had a general hypersensitiveness to drugs. Four patients showed enteritis, three gingivitis, two neuritis, one neuritis and stomatitis, and one neuritis and general debility. In general, the reactions were slight: the stomatitis and gingivitis were mild, the enteritis and digestive symptoms of little consequence, the neuritis not distressing and treatment only interrupted or modified in three patients who had jaundice and an enlarged liver, gingivitis and neuritis, and neuritis, respectively. Urinalysis showed no marked disturbance of the kidneys.

*Clinical Syphilis.*—Since our series was composed of patients with syphilis of long standing who had received more or less previous treatment, few, except for neuropathologic lesions, showed clinical evidence of the disease. Our results furnished practically no information as to the clinical effect of bismuth. Patients with neurosyphilis showed no improvement in the altered reflexes. The general health of the patients seemed improved.

## THE REDUCTION OF THE WASSERMANN REACTION

The production of a negative may be shown by the ordinary qualitative Wassermann test, but the demonstration of partial or incomplete reduction of the Wassermann antibody requires quantitative determinations which afford a more accurate means for observing the effect of bismuth. The results of our quantitative studies are given in Table 2.

*Reduction.*—Bismuth produces a reduction in the Wassermann antibody in patients who are unresponsive to arsphenamin as well as in those who are responsive. The average quantitative reduction for the forty-nine patients in this series was 39 per cent. Nineteen showed no change in the Wassermann antibody, sixteen a moderate and fourteen a marked reduction. Since the majority of these patients were resistant to arsphenamin, these results represent a minimum response. Unquestionably the effect of bismuth would be more pronounced in patients who had received no previous treatment.

Most of the reduction in the Wassermann antibody is obtained at the fourth week after the termination of treatment, although by the sixteenth week there is a further fall which is so slight as to be within the range of experimental error. One third of the reduction occurs halfway through treatment, two-thirds one week after the termination of treatment, nine-tenths at four weeks, and the maximum reduction at sixteen weeks. These quantitative records are interesting in view of the prevailing opinion that the slow absorption of bismuth in contrast to

TABLE 2.—*The Effect of Bismuth on the Wassermann Reaction*

| | Number of Patients | Per Cent. Standard Dose of Bismuth | | Previous Treatment in Grams per Patient | | Unit Value of Wassermann Antibody Before Treatment | Reduction in Wassermann Antibody | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total Dosage | Weekly Rate | Arsphenamin | Metallic Mercury | | Before Treatment | Halfway Through Treatment | Weeks After Treatment | | | | | | |
| | | | | | | | | | 1 | 4 | 8 | 12 | 16 | 20 | 24 |
| Acquired syphilis | 41 | 82 | 55 | 6.3 | 1.1 | 8.1 | 100 | 88 | 77 | 68 | 67 | 65 | 63 | 63 | 64 |
| Congenital syphilis | 8 | 110 | 79 | 4.0 | 0.8 | 8.3 | 100 | 88 | 63 | 56 | 53 | 53 | 50 | 47 | 51 |
| Total | 49 | 86 | 59 | 5.8 | 1.0 | 8.1 | 100 | 88 | 75 | 66 | 65 | 63 | 61 | 61 | 61 |
| Initial Strength of Reaction: | | | | | | | | | | | | | | | |
| 8 to 32 units | 19 | 81 | 56 | 5.1 | 0.8 | 13.9 | 100 | 88 | 83 | 66 | 64 | 64 | 63 | 63 | 63 |
| 4 units | 12 | 78 | 59 | 6.6 | 1.3 | 4.0 | 100 | 81 | 71 | 65 | 71 | 65 | 65 | 67 | 71 |
| 1 to 3 units | 10 | 89 | 47 | 8.0 | 1.6 | 1.9 | 100 | 100 | 77 | 80 | 73 | 71 | 64 | 63 | 61 |
| Clinical Syphilis: | | | | | | | | | | | | | | | |
| Ex-primary and ex-secondary | 11 | 86 | 54 | 6.1 | 1.3 | 5.5 | 100 | 86 | 77 | 64 | 67 | 68 | 67 | 69 | 73 |
| Ex-tertiary | 11 | 88 | 60 | 7.7 | 1.1 | 8.4 | 100 | 91 | 70 | 65 | 60 | 61 | 61 | 61 | 61 |
| Neurosyphilis | 10 | 75 | 51 | 5.5 | 1.4 | 11.3 | 100 | 88 | 73 | 68 | 65 | 61 | 59 | 53 | 52 |
| Latent syphilis | 9 | 79 | 52 | 5.5 | 0.7 | 7.8 | 100 | 86 | 89 | 83 | 78 | 69 | 69 | 69 | 69 |
| Duration of Disease: | | | | | | | | | | | | | | | |
| Under 1 year (average 0.7) | 3 | 99 | 70 | 4.1 | 0.7 | 9.3 | 100 | 67 | 58 | 20 | 25 | 29 | 25 | 25 | 21 |
| 2 to 10 years (average 5.3) | 14 | 91 | 56 | 7.4 | 1.2 | 6.2 | 100 | 96 | 86 | 84 | 84 | 84 | 80 | 82 | 84 |
| Over 10 years (average 19.7) | 24 | 75 | 52 | 5.8 | 1.2 | 9.0 | 100 | 88 | 76 | 68 | 65 | 61 | 61 | 60 | 60 |
| Bismuth: | | | | | | | | | | | | | | | |
| Total Dosage— | | | | | | | | | | | | | | | |
| Over 75 per cent. of standard | 21 | 107 | 56 | 6.9 | 1.1 | 8.3 | 100 | 87 | 79 | 75 | 73 | 72 | 69 | 69 | 67 |
| 25 to 75 per cent. of standard | 20 | 60 | 53 | 5.5 | 1.2 | 7.9 | 100 | 91 | 76 | 69 | 64 | 61 | 59 | 60 | 63 |
| Weekly Rate— | | | | | | | | | | | | | | | |
| Over 75 per cent. of standard | 5 | 87 | 93 | 8.4 | 1.5 | 9.8 | 100 | 80 | 55 | 50 | 45 | 40 | 40 | 39 | 39 |
| 51 to 75 per cent. of standard | 15 | 81 | 65 | 5.0 | 0.8 | 8.3 | 100 | 82 | 73 | 59 | 62 | 59 | 58 | 60 | 63 |
| 25 to 50 per cent. of standard | 21 | 81 | 38 | 6.6 | 1.3 | 7.5 | 100 | 98 | 87 | 83 | 79 | 77 | 74 | 74 | 73 |
| Arsphenamin-Fast: | | | | | | | | | | | | | | | |
| Responsive to arsphenamin | 6 | 93 | 62 | 5.0 | 0.9 | 6.8 | 100 | 75 | 54 | 48 | 40 | 38 | 38 | 37 | 37 |
| Unresponsive to arsphenamin | 35 | 80 | 53 | 6.5 | 1.2 | 8.3 | 100 | 90 | 80 | 71 | 72 | 70 | 57 | 68 | 68 |
| Previous Arsphenamin Treatment: | | | | | | | | | | | | | | | |
| 1 and 2 courses | 18 | 80 | 54 | 3.0 | 0.7 | 10.2 | 100 | 89 | 76 | 67 | 63 | 61 | 61 | 62 | 65 |
| 3 or more courses | 23 | 84 | 56 | 8.8 | 1.5 | 6.4 | 100 | 87 | 77 | 69 | 70 | 68 | 64 | 64 | 62 |

arsphenamin gives a prolonged therapeutic effect after the cessation of treatment, and that several weeks or months may be required for the production of a negative reaction. Our findings indicate that the serologic effect of bismuth in old syphilis is not appreciably slower than that of arsphenamin and mercury. With sulpharsphenamin the maximum reduction in patients with syphilis of long standing does not take place until twenty weeks after the termination of treatment, whereas, in similar patients bismuth produces its greatest effect within four weeks after treatment.

The serologic effect of bismuth appears permanent, but it is too early to state definitely whether the reduction in the Wassermann antibody will prove more lasting than with arsphenamin or mercury. Clinical reports indicate a lack of neurorecidives and clinical remissions. Other writers consider that bismuth influences the Wassermann reaction less quickly than arsphenamin, but that the effect is of longer duration and of greater permanency. Only three patients, all of whom received insufficient treatment, showed partial or complete serologic relapse. In these patients the maximum reduction occurred about the fifth week after treatment and the relapse about the fifteenth week. The other patients were followed over a period of ten months, and no subsequent increase in the Wassermann antibody occurred.

*Negative Wassermann Reaction.*—Of 432 patients mentioned in the literature, 61 per cent. gave a negative reaction after receiving variable amounts of bismuth. For the most part these patients had received no previous treatment and were in the early stages of syphilis. Our results, which deal with resistant patients in whom the infection has existed for years in spite of arsphenamin treatment, are less favorable. Although one course of bismuth lowered the Wassermann antibody in 61 per cent. of the patients, it produced a negative reaction in only 24 per cent. At the beginning of treatment, thirty-eight of the forty-nine patients had strongly positive reactions, commonly designated as 4 plus, nine had weakly positive reactions and two had doubtful reactions. As the result of treatment, 13 per cent. of the strongly positive reactions and 63 per cent. of the doubtful or weak reactions became negative.

## FACTORS INFLUENCING THE REDUCTION OF THE WASSERMANN REACTION

In previous studies the writer has called attention to the fact that in the interpretation of the serologic effect of drug treatment allowance must be made for the influence of the following factors: (1) the strength of the reaction; (2) the clinical stage of the disease; (3) the duration of the disease, and (4) the dosage of the drug. Before proper consideration can be given to the subject of bismuth therapy in arsphena-

min-fast syphilis, the influence of these factors for this particular group of patients must be determined.

*Strength of the Reaction.*—The initial strength of the Wassermann antibody influences the production of a negative reaction when the qualitative Wassermann test is employed. In this series it largely determined the percentage of doubtful or negative reactions. When the initial strength was more than sixteen units, no reactions became doubtful or negative; at eight units, 8 per cent.; at four units, 25 per cent., and below four units, 63 per cent.

The quantitative Wassermann test eliminates this error, and the initial strength of the reaction is important only because of a resistant zone, from one to four units, in which it seems more difficult to obtain a reduction. However, for this series the statistics in Table 2 show that the reduction is practically the same for all strengths of initial reaction.

*Clinical Syphilis.*—In patients who have received no previous treatment, the serologic response to arsphenamin and mercury varies with the clinical stage of the disease. A review of the literature indicates that the response to bismuth follows the same rule. A difference of opinion exists regarding the efficacy of bismuth in aborting syphilis. In seronegative primary syphilis it seems that in most cases persistent serologic and clinical negative findings were maintained, but that bismuth in this respect was inferior to arsphenamin. In seventy-one patients with seropositive primary syphilis, recorded from six sources, the reaction after one or more courses of bismuth became negative in 69 per cent. In 128 patients with secondary syphilis, recorded from nine sources, 70 per cent. became negative in from one to three courses.

In syphilis of long standing results were variable. In eighteen patients with tertiary symptoms, reported by six investigators, 55 per cent. became negative, and in ninety with latent serum-positive syphilis, reported by five investigators, 36 per cent. became negative. Hopkins [5] found serologic improvement in approximately two thirds of thirty-one patients with three and four plus reactions, the majority of whom had previously received one or two courses of arsphenamin and mercury.

Reports concerning the effect of bismuth on the spinal fluid and blood of patients with neurosyphilis are conflicting, although agreement exists as to clinical improvement. In eleven patients with neurosyphilis, cited from two sources, the Wassermann reaction of the blood became negative in two and was reduced in six.

The consensus of opinion in the literature is that bismuth is a therapeutic agent capable of producing a definite reduction in the Wassermann reaction. Like arsphenamin, it produces more rapid and more marked

5. Hopkins, J. G.: Bismuth in the Treatment of Syphilis, Arch. Dermat. & Syph. **7**:745 (June) 1923.

changes in early than in late syphilis. Its action in the former seems less efficient than that of arsphenamin, while in the latter it is fully its equal.

According to previous manifestations of the disease, our patients may be grouped clinically into those having four types of syphilis: (1) early, (2) late exclusive of neurosyphilis, (3) latent, and (4) neurosyphilis. No marked difference was noticeable in the response of the first three groups to bismuth, but the patients with neurosyphilis showed a slightly greater reduction of the Wassermann antibody, which was due to the inclusion of four patients with ocular lesions who were particularly responsive to bismuth. The response of patients with symptoms referable to the spinal axis was similar to that of other types. The children responded better than the adults, but since the majority were responsive to arsphenamin, a comparison is inconclusive.

*Duration of the Disease.*—If a positive Wassermann reaction signifies persistent syphilis irrespective of treatment, the duration of the disease tends to influence serologic response. Our results indicate a reduction of 75 per cent. in the Wassermann antibody for patients in whom the duration of the disease is less than one year, 20 per cent. when it has existed from one to ten years, and 40 per cent. when present more than ten years. The rapid response of patients with syphilis of less than one year's duration represents the usual reaction to all antisyphilitic drugs. The greater response during the late chronic stages than during the active intermediate years, if not the result of technical error, is due either to a general weakening of the disease or to the special efficiency of bismuth in the treatment of syphilis of long standing. With the exception of a slightly greater response in patients who received their first treatment within one year after infection, the time when arsphenamin treatment was begun, while possibly influencing the production of a Wassermann-fast condition, has no effect on the action of bismuth.

*Dosage of Bismuth.*—The dosage of bismuth is expressed as the percentage of an arbitrary standard dose equivalent to 0.02 and 0.002 gm. per kilogram of body weight for total dosage and weekly rate, respectively. The former represents the amount of treatment and the latter the intensity. Three fifths of the standard gave as efficient results as the full total dosage, although the patients who had a serologic relapse were among those who had received a low dosage. However, the weekly rate showed a decided difference in favor of the higher dosage, indicating that intensity of treatment is an important factor.

### TREATMENT-FAST SYPHILIS

It has been shown in the previous paragraphs that the factors which ordinarily influence the reduction of the Wassermann antibody during drug treatment have little influence in this special group of patients.

The strength of the reaction, the type of clinical syphilis, and, with the exception of the few patients in whom the disease had existed less than one year, the duration of the disease have no particular influence on the interpretation of the effect of bismuth in these arsphenamin-fast patients. The intensity of treatment, as indicated by the rate of dosage, is the only important factor which possibly may modify the results.

*Wassermann-Fast Syphilis.*—Many instances of the lack of clinical response to treatment with arsphenamin and mercury have been reported in the literature. Even exacerbation of syphilitic lesions under treatment with arsphenamin has been observed. Similarly, patients may exhibit a lack of response to bismuth. Speculation as to the mechanism producing this resistant condition is interesting. Experimental work has demonstrated that arsenic-resisting strains of spirochetes may be produced. Insufficient treatment with arsphenamin tends to produce arsenic-resisting strains. Clinical evidence indicates that these protected strains may be transmitted to other persons. Likewise, the patient may vary in his ability to transform the arsphenamin into a condition within the body which renders it spirocheticidal. The value of bismuth to the syphilologist is the addition to his armamentarium of another drug, which, although chemically in the same periodic group with arsenic, is sufficiently different to produce clinical improvement in patients who are resistant to arsphenamin and mercury.

Patients who are serologically treatment-fast far outnumber the clinically treatment-fast patients. The ordinary classification of Wassermann-fast includes at least three groups: (1) true Wassermann-fast patients in whom the strength of the reaction does not change, (2) patients in whom the Wassermann antibody at first responds to treatment but later apparently reaches a resistant zone, and (3) false Wasserman-fast patients in whom the initial reaction is so strong that a negative is not readily obtained by treatment. The third group does not belong in the Wassermann-fast class, and the second is not strictly in the same category as the first or true Wassermann-fast group. Thirty-five of the forty-one adult patients were in the first or second groups. Of these approximately twenty-nine, who had been under observation for more than one year, never had exhibited any change in the strength of the reaction, while six had shown the characteristics of the second group. Since all these patients had not been followed by a quantitative Wassermann test from the inception of the treatment with arsphenamin, it was impossible to determine the actual proportion of the two groups, but it can be definitely stated that no false Wassermann-fast patients were included.

*Negative Reactions.*—The production of a qualitative negative reaction gives some information as to the effect of bismuth treatment, but for comparative purposes it is frequently misleading. Of the forty-one

adult patients, six had previously shown a favorable response to arsphenamin and mercury, and thirty-five had evidenced little or no serologic change. The production of a doubtful or negative reaction in the latter group occurred in 23 per cent. and a weak positive reaction in 11 per cent., a total of 34 per cent. In the six responsive patients a doubtful or negative reaction occurred in 50 per cent., a weak positive in 17 per cent., a total of 67 per cent. These results indicate a more feeble response on the part of those who were resistant to arsphenamin and mercury.

*Quantitative Observations.*—Irrespective of the production of a negative reaction, patients vary in their response to bismuth therapy. Of the six adult patients who had previously shown a favorable response to arsphenamin, all but one responded readily to bismuth. Of the thirty-five patients who showed either slight or no response to persistent treatment with arsphenamin, 49 per cent. showed no response, 34 per cent. a moderate, and 17 per cent. a marked response. In other words, about one half of the patients in the arsphenamin-fast group responded to a different chemical preparation. The response of patients to treatment with bismuth depends on the individual but is more marked in those who are generally responsive to drug therapy.

Table 2 shows that the quantitative reduction of the Wassermann antibody in the arsphenamin-resistant patients is about one-half that of the arsphenamin-responsive patients. No difference was found between partially and completely resistant patients. Patients who had previously received one or two courses of arsphenamin and mercury gave no greater response to bismuth than those who had received three or more courses. Evidently the amount of previous treatment with arsphenamin and mercury in Wassermann-fast patients has no influence on the serologic effect of bismuth treatment. While it is natural to expect a less favorable response in Wassermann-fast than in untreated or responsive patients, it is important to know that bismuth will prove effective in at least one half of these patients.

## SUMMARY

1. Bismuth treatment lowers the strength of the Wassermann antibody not only in patients who are responsive to arsphenamin, but also in those who are unresponsive. The average reduction in this series, composed largely of arsphenamin-resistant patients, was 39 per cent. which probably represents the minimum effect of bismuth.

2. Nine tenths of the reduction was obtained four weeks after the end of treatment, and the remaining one-tenth by the sixteenth week. In patients with old syphilis bismuth does not give any slower serologic action than the arsphenamins.

3. The reduction appears permanent, at least it was permanent for the six months the patients were under observation. The few patients who showed a relapse received less than the standard dosage.

4. Variable factors such as the strength of the reaction, the clinical stage and duration of the disease and the total dosage, which usually render serologic interpretations of doubtful value, exerted a negligible influence in this particular series and permitted direct comparison between patients responsive and unresponsive to arsphenamin. However, the extent of the reduction of the Wassermann antibody corresponded to the intensity of treatment.

5. All the Wassermann-fast patients in this series had shown no change in the strength of the Wassermann antibody under treatment with arsphenamin. One half of these patients reacted to bismuth as compared with five sixths of the patients who were responsive to arsphenamin. Also the quantitative reduction of the Wassermann antibody in these patients was one-half that of the arsphenamin responsive patients.

6. After the first course of treatment the total amount of arsphenamin and mercury administered had no apparent influence on the action of bismuth.

# OBSERVATIONS ON THE SIGMA REACTION FOR SYPHILIS

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Since 1906, the Wassermann complement-fixation test for syphilis has been used by diagnostic laboratories as the most satisfactory indicator for detecting syphilis in the patient's serum. All modifications or new tests have always been compared with the Wassermann reaction, which therefore practically has become a standard. Its limitations, however, are understood and accepted.

In an effort to do away with any test requiring the use of a hemolytic system as a final indicator, direct flocculation methods were elaborated. One of the earliest tests to win recognition was the Sachs-Georgi, which, briefly, consisted of adding the diluted serum of a patient to a saline suspension of heart extract (with and without cholesterin), incubating for two hours at 37 C., and leaving the tubes at room temperature for twenty hours, after which the amount of flocculation in the tubes was read.

In 1921, Dreyer and Ward [1] described the Sigma reaction, a modification of the Sachs-Georgi test, which in addition expressed the results quantitatively. These investigators made extensive comparative tests with the Wassermann reaction, which are described at length in the special report series No. 78 of the Medical Research Council (1923). Their conclusions demonstrate the value of the Sigma test, especially in treated cases.

At the suggestion of Dr. Zinsser, and under the personal direction of Dr. Ward, experiments were undertaken to follow up patients under treatment at The Peter Bent Brigham Hospital. The syphilis clinic there was under the charge of Dr. James Evans, who cooperated by furnishing the serums and clinical histories of the patients in his service. At that time he was particularly interested in learning the effects of bismuth on selected patients. Table 1 divides them into two groups: those treated with bismuth only, and those treated with other drugs such as arsenic, mercury and iodids. Table 1 gives the results of treatment on seventy-two patients who received more than one Sigma test. The usual course of reading during treatment shows an initial rise, followed by a more or less progressive decrease in the number of units. Nearly all the cases show a fluctuating curve of reading, but the end-result is usually

1. Dreyer, G., and Ward, H. K.: Lancet **1**:956 (May 7) 1921.

appreciably lower than the first reading, indicating improvement. It is a notable fact that the decrease in the Sigma units parallels clinical improvement.

In Table 1, it can be seen that of the seventy-two cases under observation, fifty-nine, or 81.9 per cent., showed the last Sigma reading to be the same as or lower than the first reading; while thirteen, or 18.1 per cent., showed the last Sigma reading to be higher than the first reading. It is interesting to note that the clinical condition of the patients paralleled the Sigma results.

TABLE 1.—*Results on Seventy-Two Patients Given the Sigma Test*

| Stage of Disease | Number of Cases | Last Sigma Reading Higher than First | | Last Sigma Reading Lower than First | |
|---|---|---|---|---|---|
| | | Arsenic, Etc. | Bismuth | Arsenic, Etc. | Bismuth |
| Primary | 2 | .. | .. | 2 | .. |
| Ex-primary | 2 | .. | .. | .. | 2 |
| Seconday | 5 | 1 | .. | 4 | .. |
| Ex-secondary | 9 | 1 | 1 | 1 | 6 |
| Tertiary | 16 | 1 | .. | 8 | 7 |
| Ex-tertiary | 7 | 1 | .. | .. | 6 |
| Central nervous system | 21 | 4 | 1 | 16 | .. |
| Ex-central nervous system | 3 | .. | 1 | 2 | .. |
| Congenital | 4 | .. | 1 | .. | 3 |
| Serologic | 3 | 1 | .. | 1 | 1 |
| Total | 72 | 9 | 4 | 34 | 25 |

TABLE 2.—*Results of Tests on One Hundred Patients*

| Stage of the Disease | No. of Cases | Wassermann + Sigma + | Wassermann 0 Sigma 0 | Wassermann + Sigma 0 | Wassermann 0 Sigma + | Total Wassermann + | Total Sigma + |
|---|---|---|---|---|---|---|---|
| Primary | 3 | 1 | 2 | 1 | 0 | 2 | 1 |
| Ex-primary | 4 | 2 | 1 | 1 | 4 | 3 | 6 |
| Secondary | 6 | 18 | 1 | 0 | 2 | 18 | 20 |
| Ex-secondary | 13 | 22 | 2 | 1 | 3 | 23 | 25 |
| Tertiary | 20 | 26 | 11 | 0 | 1 | 26 | 27 |
| Ex-tertiary | 8 | 12 | 1 | 1 | 3 | 13 | 15 |
| Central nervous system | 27 | 18 | 14 | 2 | 6 | 20 | 24 |
| Ex-central nervous system | 4 | 2 | 3 | 0 | 1 | 2 | 3 |
| Congenital | 5 | 7 | 0 | 0 | 5 | 7 | 12 |
| Serologic | 10 | 11 | 1 | 2 | 0 | 13 | 11 |
| Total | 100 | 119 | 36 | 8 | 25 | 127 | 144 |

Grouping the cases according to the treatment received, it was noted that of twenty-nine patients treated with bismuth, twenty-five, or 86.2 per cent., showed the same or lower Sigma readings as at the first test, and four, or 13.8 per cent., showed a higher titer; of the forty-three patients treated with arsenic and similar drugs, thirty-four, or 79 per cent., showed the same or lower Sigma readings, and nine, or 21 per cent., showed a higher titer.

Table 2 shows the results of 188 comparative tests made on 100 patients, in whom the relative value of the Sigma and the Wassermann

tests is indicated. The Wassermann tests were made on the same serums under the direction of Dr. William A. Hinton, who volunteered his cooperation in this study.

Table 3 shows the result of the foregoing expressed in percentage and gives the comparative reading with Dreyer and Ward's figures, based on 689 similar tests.

From Table 1, it can readily be seen that the Sigma test offers a valuable aid in following the effect of a course of treatment. In fact, Dr. Evans noted especially the psychologic value of reporting to the patients what their Sigma unit was following their last treatment. He maintained that the majority of the patients were keenly interested in their progress and would cooperate to the fullest extent in an attempt to lower their Sigma titer.

TABLE 3.—*Results of Foregoing and Comparison with Dreyer and Ward's Figures*

| | Wassermann + Sigma + Percentage | Wassermann 0 Sigma 0 Percentage | Wassermann + Sigma 0 Percentage | Wassermann 0 Sigma + Percentage | Total Wassermann + Percentage | Total Sigma + Percentage |
|---|---|---|---|---|---|---|
| Cf. Table 1 | 63.3 | 19.1 | 4.3 | 13.3 | 67.7 | 76.6 |
| Dreyer and Ward | 52.0 | 35.0 | 4.0 | 9.0 | 58.0 | 61.0 |

TABLE 4.—*Results of One Hundred and Seventy-Three Tests on Psychopathic Patients*

| | Number | Percentage |
|---|---|---|
| Wassermann +, Sigma + | 63 | 36 |
| Wassermann 0, Sigma 0 | 64 | 66 |
| Wassermann +, Sigma 0 | 5 | 3 |
| Wassermann 0, Sigma + | 43 | 24.6 |

Another interesting feature, illustrating the value of the Sigma test, is that active treatment apparently does not interfere with the Sigma reaction as it does with the Wassermann. It is a well accepted fact that vigorous treatment will result in a false negative Wassermann test, which returns to positive after the treatment has been stopped.

Table 4 gives the result of 173 comparative tests made on serums from patients at the Boston Psychopathic Hospital. These serums were furnished through the kindness of Dr. Henry C. Solomon, and all represent patients with cerebrospinal syphilis undergoing treatment.

It can thus be seen that, using the Wassermann test as an indicator, forty-three, or 24.6 per cent., of the patients were serologically negative for syphilis, but the condition was readily detected by the Sigma reaction.

## CONCLUSIONS

From the study of the results of the experiments described in the foregoing, the following conclusions may be drawn:

1. The Sigma reaction offers a reliable index in following the effect of a course of treatment for syphilis.

2. The validity of the Sigma reaction is apparently not affected by treatment.

3. Much more information can be gained from a course of Sigma readings than from a similar course of Wassermann readings.

# CAUSE OF NITRITOID CRISIS FOLLOWING INTRAVENOUS INJECTION OF ARSENICALS *

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Previous studies concerning the nature of the nitritoid crisis [1] have led us to the conclusion that these manifestations, which are occasionally observed after the intravenous injection of arsenicals, are due to a sudden reaction of the involuntary nervous system. It became evident that this reaction, which is of the nature of a reflex, and which involves mainly the parasympathetic portion of the involuntary nervous system, does not depend so much on the previously injected agent as on an already existing abnormal reactivity of the body. The following contribution is an attempt to establish the existence of a varying activity by means of additional experiments.

Our early investigations on the nitritoid crisis were made on patients who received injections of arsphenamin. Among 3,152 patients, there were found ten who showed more or less pronounced vasomotor symptoms following the injection. In other patients, every injection of arsphenamin was found to entail a reaction of the involuntary nervous system which is measurable as a decrease of short duration in the number of the peripheric leukocytes, lasting about from four to ten minutes. This decrease was marked in the ten patients manifesting symptoms of a nitritoid crisis, and lasted during the entire period of clinical angioneurotic symptoms. In normal cases, it was possible to prevent this usually slight reaction of the involuntary nervous system following each administration of arsphenamin, by a previous injection of epinephrin. Further investigation of the conditions prevailing after injection of silver arsphenamin showed that of all patients examined none revealed the slightest change in the leukocyte curve. Therefore, in contrast to arsphenamin, silver arsphenamin may be injected without causing a disturbance in the balance of the involuntary nervous system or in the leukocyte curve.

An exception to the latter observation was found to obtain only in the ten patients who developed symptoms of a nitritoid crisis after

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1. Rosen, I.; Müller, E. F., and Myers, C. N.: Studies on the Complex Nitritoid Crisis after the Intravenous Administration of Arsenicals, Arch. Dermat. & Syph. **10**:316 (Sept.) 1924. The relation of Silver Arsphenamin to the Involuntary Nervous System and to the So-Called Nitritoid Crisis, Ibid. **10**:607 (Nov.) 1924.

injections of arsphenamin. When silver arsphenamin was administered, these patients showed a drop in the leukocyte curve similar to that observed following injection of arsphenamin, but generally there were no visible manifestations. Occasionally, the count was as low as 2,000 and 4,000, without any outward indications to that effect in the patient. This singular reaction of the leukocytes after injections of silver arsphenamin cannot therefore be attributed to the medicament; it is due rather to an abnormal reactivity in the patient. Whether this abnormal reactivity has its basis in a constitutional change in the balance of the involuntary nervous system, or whether this change is the result of a syphilitic infection of the involuntary nervous system, or whether it be due to the influence of other organs on the involuntary nervous system, is a problem still unsolved. On the other hand, further investigations have already made possible an answer to the question of a preexisting abnormal reactivity.

It is well known that acute peripheral leukopenia may be produced by various methods of stimulation. Goldscheider and Jacob [2] were the first to describe this reaction as following the injection of peptones and similar substances into the circulatory system. Later Widal and a number of his collaborators [3] found that some of their patients whom they believed to be suffering from hepatic conditions showed a decided decrease in the number of leukocytes following the ingestion of 200 c.c. of milk on an empty stomach; normal persons showed no signs of such a decrease—on the contrary, the majority would frequently reveal a slight increase.

This symptom of a decrease in the leukocyte count is, furthermore, observed in both patients and normal persons after injections of nonspecific proteins and physiologic sodium chlorid solution into the skin [4] after pressure on the eyeball and after the application of strong stimulations to the skin; in each case, the condition is due to an influence brought to bear on the parasympathetic apparatus.[5]

From further studies of the nitritoid crisis described above, we learned that only those methods may be used in the production of this reaction which are of no avail in a person with normal reactivity. An investigation of the manifestations following the ingestion of milk was therefore begun. Our studies were based on the findings of former investigations. The latter had already revealed the fact that a decrease in the leukocyte count after ingestion of milk is not restricted to patients

2. Goldscheider and Jacob: Ztschr. f. klin. Med. **25**:1894.

3. Widal, F.:: Abrami, P., and Brissand, D.: Presse méd. **28**:181, 1920.

4. Müller, E. F.; München. med. Wchnschr. **69**:1306, Ztschr. f. Exper. Med. **32**:71, 1922.

5. Müller, E. F., and Hoelscher, R.: Ztschr. f. d. ges. exper. Med. **38**:478, 1923; **51**:225, 1924.

suffering from hepatic involvement. Moreover, it had been determined that a reflex of the mucous membranes of the stomach normally follows the entrance of foodstuffs into the digestive tract, causing a slight increase in the number of leukocytes in the peripheral vessels. Under certain conditions, this reflex is conducted abnormally along the parasympathetic portion of the involuntary nervous system, and its intensity becomes measurable in the dip of the leukocyte curve.[6]

This is not the place for a discussion of the pro and contra Widal's conclusions. It was my intention merely to determine whether patients who show this abnormal reactivity after the injection of arsenicals react normally or abnormally after the ingestion of milk.

The tests were made exactly as directed by Widal in a number of patients who had been treated with arsphenamin. Both those reacting to the injections with a short decrease in the number of leukocytes after administration of arsphenamin and those showing no change in the leukocyte curve after injections of silver arsphenamin were examined after drinking milk on an empty stomach; according to Widal's work, 200 c.c. of milk were used. The counts were made prior to the ingestion of the milk and thereafter at regular intervals of from five to ten minutes until about fifty minutes after such ingestion. The results of these examinations were not at variance with the findings in normal persons. The following curves were recorded in two cases:

ILLUSTRATIVE CASES

(7) I. M., a man aged 42, whose leukocyte count was 9,600, received 200 c.c. of milk by mouth. The results are given in Table 1.

TABLE 1.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Receiving Milk |
|---|---|
| 9,400 | 5 |
| 9,600 | 10 |
| 10,200 | 15 |
| 9,800 | 20 |
| 10,800 | 25 |
| 10,800 | 35 |
| 10,000 | 45 |

(18) G. B., a man, aged 45, whose leukocyte count was 8,200, received 200 c.c. of milk by mouth. The results are given in Table 2.

When identical tests with milk ingestion on an empty stomach were made on the six patients who had previously shown a nitritoid reaction, it was found that five of the six examined showed a decided decrease in the number of leukocytes. The leukocyte curves are contained in

6. Müller, E. F.: München. med. Wchnschr. **69**:1753, 1922.

the following tables. The number in parentheses refer to the number under which the identical case is described in our previous articles.

A routine physical examination in these cases revealed no signs of hepatic involvement. If remote signs of a syphilitic injury were present, they must have been insignificant as they escaped detection.

TABLE 2.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Receiving Milk |
|---|---|
| 7,800 | 5 |
| 9,200 | 10 |
| 8,800 | 15 |
| 8,800 | 20 |
| 9,000 | 30 |
| 9,000 | 45 |

Ten other cases are omitted for lack of space.

(33) M. B., a woman, aged 35, who had received four arsphenamin treatments after the fifth treatment had the following symptoms: nausea, small but regular pulse, lips slightly pale. The leukocyte count was 6,800. She was given 200 c.c. of milk by mouth. The results are given in Table 3.

TABLE 3.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Ingestion of Milk |
|---|---|
| 7,000 | 3 |
| 5,200 | 10 |
| 5,000 | 15 |
| 7,200 | 20 |
| 7,200 | 30 |
| 7,000 | 40 |

(35) J. W., a man, aged 40, after the third injection complained of severe nausea. He vomited serous fluid (salivation?); the face and lips were slightly cyanotic; respiration, shallow; blood pressure, 60 mm. of mercury; pulse small and irregular. The reaction lasted for about fifteen minutes. The leukocyte count was 11,200. The results of the ingestion of 200 c.c. of milk by mouth are given in Table 4.

TABLE 4.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Ingestion of Milk |
|---|---|
| 11,600 | 3 |
| 9,800 | 5 |
| 10,200 | 10 |
| 9,800 | 15 |
| 12,000 | 25 |
| 11,200 | 30 |
| 12,400 | 40 |

(32) (70) A. T., a man, aged 25, had marked symptoms: rapid heart, small and irregular pulse. The reaction lasted for about fifteen minutes after injection of arsphenamin. After the injection of silver arsphenamin, there were also slight symptoms of angioneurotic disturbances. The patient soon recovered and returned home in from thirty to fifty minutes, and had no further trouble. The leukocyte count was 12,400. The results of the ingestion of 200 c.c. of milk by mouth are given in Table 5.

TABLE 5.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Ingestion of Milk |
|---|---|
| 9,600 | 5 |
| 8,000 | 10 |
| 4,800 | 15 |
| 5,600 | 20 |
| 6,200 | 25 |
| 6,800 | 30 |
| 6,200 | 35 |
| 7,800 | 40 |
| 7,600 | 50 |
| 9,200 | 70 |
| 9,800 | 90 |

(31) In A. C., a man, aged 29, the symptoms did not appear until after the injection had been completed. The patient suddenly complained of nausea and a general feeling of being ill. He was pale; the pulse was hardly perceptible; respiration was shallow, and he was restless. The leukocyte count was 7,000. The results of the ingestion of 200 c.c. of milk by mouth are given in Table 6.

TABLE 6.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Ingestion of Milk |
|---|---|
| 6,000 | 5 |
| 5,000 | 10 |
| 5,400 | 15 |
| 5,000 | 20 |
| 7,000 | 30 |
| 7,200 | 40 |

(38) A. C., a man, after receiving the fourth treatment became very pale; there was a livid appearance of all mucous membranes; the veins of the head were distended; the lips and conjuctivae were swollen. All symptoms gradually improved, though for a while the condition of the patient seemed serious. After half an hour, the patient was well. The leukocyte count was 7,600. The results of ingestion of 200 c.c. of milk are given in Table 7.

COMMENT

Reviewing these six cases, Case 35 is the only one in which the drop in the number of leukocytes is not very marked. In this case also, however, there exists a distinct difference from the twelve normal cases, two of which are tabulated above.

The other five cases demonstrate distinctly the acute leukopenia which was first described by Widal and his collaborators as a symptom of liver insufficiency. It is stated above that later research work has determined more nerve causes of such an acute leukopenia and that abnormal reactions of the parasympathetic part of the involutary nervous system play an important part in these disturbances. We may encounter this symptom also without liver insufficiency.

TABLE 7.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Ingestion of Milk |
|---|---|
| 6,500 | 5 |
| 4,000 | 10 |
| 7,200 | 15 |
| 6,400 | 20 |
| 7,800 | 25 |
| 7,400 | 35 |

(39 L. L., a woman, aged 30, after the fifth treatment, suddenly had headache, dizziness and nausea. The patient had a feeling of faintness; the respiration was shallow and the pulse faint. All visible mucous membranes were pale, then livid. The symptoms disappeared after from six to eight minutes. The leukocyte count was 6,800. The results of the ingestion of 200 c.c. of milk by mouth are given in Table 8.

TABLE 8.—*Number of Leukocytes after Ingestion of Milk*

| Leukocytes | Minutes after Ingestion of Milk |
|---|---|
| 7,200 | 5 |
| 4,800 | 10 |
| 5,800 | 15 |
| 8,000 | 20 |
| 7,400 | 30 |
| 7,200 | 35 |

Two more cases may be mentioned in this connection. They were found in testing patients, two of whom were considered normal. After drinking 200 c.c. of milk, a marked decrease in the leukocyte count was noticed; in both cases, the test was repeated at a later date, and the identical figures were obtained. Neither patient showed any apparent sign of liver disturbance, but a careful observation of both after the injection of arsenicals revealed that the first patient always developed slight symptoms of the angioneurotic type, which was followed by a period of peculiar nervousness. The second patient fainted twice after an intravenous injection of arsphenamin and also twice after drawing blood from his cubital vein for a Wassermann test. Both patients, therefore, must be considered as belonging to the group tabulated above.

SUMMARY

It was observed that the patients who reacted to arsphenamin with unusual symptoms of a nitritoid crisis and those who showed equally unusual symptoms after injections of silver arsphenamin, i. e., a decrease in the number of leukocytes in the blood with or without visible manifestations, will also react positively to the Widal test without showing any apparent sign of hepatic involvement. Following the foregoing studies on the causes of Widal's hemoclastic crisis and entirely independent of any possible hepatic involvement which would entail an abnormal condition of the involuntary nervous system, it must be assumed that in the seven patients with a positive reaction, even the simple act of taking nourishment leads to an abnormal reaction of the leukocytes and of the involuntary nervous system. It is not our intention to discuss details of the Widal hemoclastic crisis. The very fact of its presence is proof that abnormal conditions exist in these patients. This confirms former conclusions that the unusual reaction in the blood following injections of silver arsphenamin into patients who also show symptoms of a nitritoid crisis after administration of arsphenamin is not due to the drug, but rather to a pathologic reactivity of the involuntary nervous system. This abnormal reactivity, latent in the body before injection and manifested by an unusual reaction of the body itself, is due to a disturbance of the involuntary nervous system.

# LEUKODERMA FOLLOWING DERMATITIS VENENATA (RHUS TOXICODENDRON) *

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In a review of the literature we have found reports of leukoderma following many dermatologic conditions,[1] but so far as we were able to search, there is no recorded case following dermatitis venenata.

## REPORT OF CASE

H. W., a man, white, aged 30, a salesman, born in the United States, was referred to us on Aug. 20, 1924, for treatment of his skin condition. On June 15, the patient developed "ivy poisoning," at which time he consulted his family physician, Dr. Paul Baurberger, Yonkers, N. Y. At this time the patient had a characteristic eruption of dermatitis venenata involving the face, neck, arms and hands. He was treated with wet dressings for twelve hours. The following day the condition was so much improved that further treatment was suspended. In a short time all the lesions healed completely and left no visible traces. (The patient believed that he had had one or two previous attacks of "ivy poisoning.")

Fifteen days later, July 1, he went in bathing for the first time that summer. He received a moderate sunburn covering arms, shoulders, face and neck on this day and on four consecutive days. The sunburn was not unusually severe and did not prevent the patient from doing his daily work. A few days later the skin on his forehead peeled, but no other exposed surface showed any signs of desquamation. By July 10, the sunburned areas had tanned. Simultaneously with this tanning, small white spots began to appear throughout the tanned

* From the service of Dr. F. H. Dillingham, N. Y. Polyclinic Medical School and Hospital.

1. Almkvist, Johan: Sur un cas de leucoderme post-parapsoriasque, Acta dermat.-ven. **2**:468, 1922; Ueber Leukoderma verschiedenen Ursprungs und zwei Fälle nach Pityriasis Rosea, Dermat. Ztschr. **41**:16, 1924. Arndt, G.: Ueber Brocqsche Krankheit (erythrodermie pityriasique en plaques disséminees) nebst einigen Bemerkungen zur Frage der Parapsoriasis, Arch. f. Dermat. u. Syph. **100**:7, 1910. Blumenfield: Zur Kenntnis des Leukoderma psoriaticum, Arch. f. Dermat. u. Syph. **100**:89, 1910. Brandweiner, A.: Leukoderma Syphiliticum, Leipzig and Vienna, F. Deuticke, 1907. Buschke, A.: Fall von Leukoderma Psoriasticum, Arch. f. Dermat. u. Syph. **76**:297, 1905. Ehrmann, D.: Ueber Hautentfarbungen druch secondar syphilitische, Exanthem, Ibid., Erganzungsheft **2**:23-75, 1891. Ehrman, S., and Wetheim, L.: Zur Frage des Leukoderma Syphiliticum, Ibid., **143**:128, 1923. Hallopeau: Sur la production, consecutivement a des plaques psoriasiques, d'achromies persistantes, Bull. Soc. dermat. et syph. **3**:11 (Jan. 14) 1892. Jesionik: Ueber Leukoderma bei Lues, bei Psoriasis und bei Eczema Seborrhoricum, München. Med. Wchnschr. **53**:1153, 1906. Lane, John E.: Vitiligo and Syphilis, Sect. on Dermat. A. M. A. **1**:86, 1916. Lindberg, K.: Quelques Considerations sur le Vitiligo, Presse méd. **17**:196 (Feb. 28) 1923. Michelson, Henry E.: Leukoderma bei Pityriasis Lichenoides Chronica, Arch. Dermat. u. Syph. **2**:288 (Sept.) 1922. Sato, K.: Ueber Leukoderma bei Parapsoriasis, Dermat. Wchnschr. 939, 1921. Wetheim, L.: Leukoderma Syphiliticum und Hohensonne, Dermat. Wchnschr. **76**:117, 1923.

regions with the exception of the shoulders. The patient said that these white spots appeared in the same location as the lesions of the ivy poisoning.

When first seen by us (Aug. 20, 1924), the patient presented discrete and confluent depigmented areas over the face, the anterior, lateral and posterior surfaces of the neck, the ears, the flexor and extensor surfaces of the lower third of the arms, the forearms and the dorsal surfaces of the hands and fingers. The discrete lesions, which were best seen on the forearm, ranged in size from

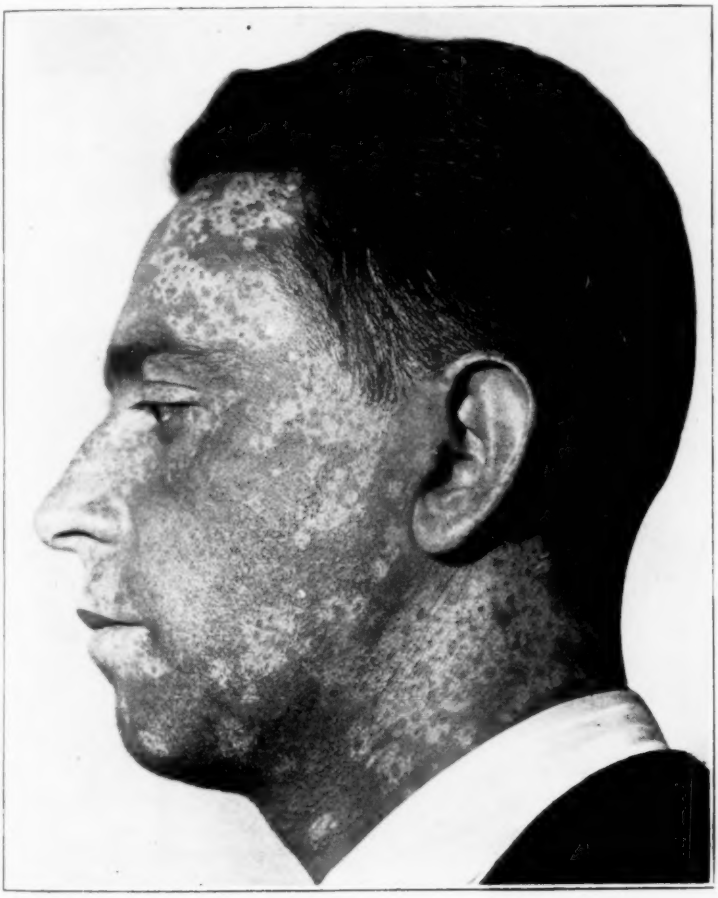

Fig. 1.—Characteristic patches of leukoderma on the site of former dermatitis venenata (Rhus toxicodendron) lesions.

that of a pinhead to that of a dime. In general the contour of these lesions was irregular; although a few were oval, the majority showed an irregularly rounded form. In the center of most of the discrete lesions was a split-pea sized pigmented macule, well defined from the surrounding depigmented area. These depigmented areas were not hyperpigmented at their periphery, but nevertheless they stood out distinctly from the surrounding normal skin. On the lateral surfaces of the face and neck the lesions were for the most part confluent, producing large patches of depigmentation stippled with pigmented

spots of various sizes. The contour of these patches was markedly irregular, owing no doubt to a coalescence of discrete lesions. In several depigmented patches on the temporal and bearded regions, the hairs had grown in white. The periphery of the patches did not show any hyperpigmentation. The grouping of the depigmented areas corresponded to the grouping of the lesions usually seen in dermatitis venenata (ivy poisoning).

Sutton,[2] Shelmire[3] and others have called attention to a type of depigmentation in which each patch, oval or round, presented a small brownish maculopapule in the center. Sutton designated this type of vitiligo as leukoderma acquisitum centrifugum. The appearance of the lesions on the forearm in our case bears a certain resemblance to those of leukoderma acquisitum centrifugum, but the papular element of the central pigmented spot is missed here, and the outlines are less regular and not so sharply demarcated from the surrounding skin.

The general physical examination was entirely negative. There were no signs of disturbance in endocrine function, and the blood Wassermann test was negative. The patient unfortunately refused to allow a biopsy to be made.

Fig. 2.—Discrete leukodermic spots corresponding to previous areas of dermatitis venenata.

## COMMENT

Kaposi[4] first pointed out that leukoderma may follow various cutaneous eruptions. For many years syphilis has been accused of being the sole cause of this form of leukoderma, but a sufficient number of cases have been reported subsequent to psoriasis, parapsoriasis, pityriasis rosea, lichen planus, seborrheic eczema, lichen simplex chronicus, etc.,[1] in order to dispel all doubt as to the nonspecificity of leukoderma.

The explanation of the production of this depigmentation is as unclear in our case as in those following the various diseases mentioned above. We know, however, that leukoderma following syphilis, psoriasis, etc., originates on those lesions which have been but slightly infiltrated; such is the case in the lesions of dermatitis venenata.

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2. Sutton, Richard L.: Leukoderma Acquisitum Centrifugum, J. Cutan. Dis. **34**:797, 1916.

3. Shelmire, J. B.: Leukoderma Acquisitum Centrifugum, J. Cutan. Dis. **35**:163, 1917.

4. Kaposi, Moritz: Patholgie und Therapie der Hautkrankheiten, Ed. 5, Vienna, 1899.

The question naturally arises whether we are dealing here with a true primary leukoderma due to a derangement of the pigment function of the skin areas invaded by the toxins of *rhus toxicodendron*, or a pseudo-leukoderma resulting from exposure of the affected parts to the rays of the sun.

Brandweiner [1] believes that leukoderma following syphilis is due to a temporary derangement in function of the pigment-forming cells resulting from the action of the syphilitic virus. It seems plausible to believe that the toxins of *rhus toxicodendron* could produce a similar disturbance in the function of the pigment-producing cells of the involved areas. Our belief is further strengthened when we recall that in our case the lesions of dermatitis venenata had completely healed ten days before exposure to the sun. Accordingly, we conclude that we are dealing here with a true or primary leukoderma.

## TREATMENT

Leukoderma has been repeatedly treated with the Alpine light. In general the result has been disappointing. We resorted to this form of treatment in our patient. He received five treatments given at intervals of three weeks. A mild erythema over the involved areas was produced at each visit. Judging from the amount of improvement which has taken place during a month, we believe that the achromia will be completely cured within a short time.

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# UNIVERSAL PSORIASIS COMPLICATED BY TUMOR-LIKE FORMATIONS

## REPORT OF A CASE *

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Although the literature is filled with numerous reports on the various observed forms in which psoriasis manifests itself, a repeated and careful perusal of the recorded cases has failed to bring to light anything similar to the one here reported, and I am therefore convinced that it is a hitherto undescribed form of the disease; namely, an atypical case of chronic psoriasis associated with tumor-like growths.

This type of psoriasis presents a remarkable resemblance in clinical appearance to other dermatoses as well as other forms of psoriasis. For example, it simulates in appearance a case of parakeratosis ostracea (scutularis) described by Unna in 1890 in the *International Atlas;* and, another by Ludwig Weiss in 1912 in *The Journal of the American Medical Association.* It also bears a strong resemblance to mycosis fungoides, psoriasis rupioides, psoriasis verrucosa, dermatitis caused by arsenic, and in many ways suggests sarcoma, especially Kaposi's sarcoma. However, a careful study of the skin of this patient, probing beneath the superficial appearance, in addition to a miscroscopic examination of the tissues, reveals differences which clearly prove that this case is not related to any of these conditions.

The clinical recognition of typical psoriasis is easy even for the neophyte, for it depends on such definite data as the occurrence of a slightly elevated, thickened or infiltrated, papular lesion, with sharply defined borders, located on characteristic sites, and showing shiny, silvery white scales, which on removal reveal bleeding points and inflammatory bases. However, this most provoking of all dermatoses may present so many different appearances that it may be extremely difficult even for the experienced dermatologist to make a correct differential diagnosis.

The subclassification of the disease according to its many manifestations and distinctive features helps considerably in making a more descriptive diagnosis; and all dermatologists are more or less familiar with the various terms, such as psoriasis punctata, guttata, nummularis,

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and gyrata, which have been applied to the different types of lesions designating in a word their size or configuration. Although the size of the lesions may vary from that of a pinhead to that of the palm, and although they are more commonly seen as individual patches and discrete lesions, they may at times become so diffused and confluent as to cover the entire cutaneous surface with one sheet of eruption; and we have, as in the case here reported, the rarely observed universal type of psoriasis. Other examples of the forms of this disease which are more rarely seen are psoriasis rupioides, in which there is a tendency to the central heaping up of the scales, and psoriasis verrucosa, in which there is a marked papillary hypertrophy of the plaques which assume a wart-like appearance. However, in all these different forms of the disease, although the clinical pictures differ widely, the histopathologic evidence is characteristic of psoriasis. The combined clinical and histopathologic picture presented in the case described in this paper has convinced me that it is not only rare in that it is the universal type of psoriasis, but that it is absolutely unique as far as can be concluded from a survey of the abundant reports of typical and atypical cases in the literature, in that it presents the undescribed feature of tumor formations associated with the disease.

## REPORT OF CASE

*History.*—L. G., a white girl, aged 21, unmarried, a native of the United States, was admitted to the skin department of the Cornell University Medical College Clinic, on March 21, 1923. Her father and mother were English Jews. They had never complained of any chronic disease. The mother died from some unknown cause when the patient was very young. The father was living and well. She has two sisters who are apparently normal in every respect. There was no history of tuberculosis, cancer, syphilis, diabetes or mental diseases in the family. She had no general chronic complaint except constipation and occasional frontal headaches when reading. There was no history of any illness of infancy or childhood. An appendectomy had been performed a few years before. Her menstrual period began at the age of 13 and was always regular, but somewhat delayed, coming every five to six weeks. There was a scanty flow of seven days' duration and considerable abdominal colic, but no passage of clots. Her weight for the past few years had always been more or less constant, ranging from 120 to 125 pounds (54.4 to 56.7 kg.). There was no history of nervousness, diarrhea, gastric disturbances or symptoms referable to disorders of the endocrine system. Her bowels had always been constipated and moved only after the ingestion of a cathartic. She had been taking compound cathartic pills every night for two years. Prior to her admission, she had never had a chronic cough; but when she was examined she had a cough of several days' duration, accompanied by the expectoration of sputum. There were no symptoms of cardiovascular disturbances, but the patient stated that her legs in the region of the ankles had been swollen for several years. There was never any dyspnea or dysuria, but she had been compelled to micturate twice during the night.

*Cutaneous Condition.*—On March 21, the patient was admitted to the Cornell University Medical College Clinic, complaining of a recurrent persistent

eruption of six years' duration. She stated that the eruption had always been more or less generalized and accompanied by slight itching. It had first appeared behind both ears, and in the form of red, scaly patches, and then had spread rapidly to the scalp, and more slowly over the entire body. She had at first continued attending high school, but finally had to leave because her entire face and skin had become involved. She reported that she had

Fig. 1.—Psoriasis of the face, neck, trunk and upper extremities, while the patient was at Cornell Clinic.

been a patient at the Mount Sinai Hospital, and had first met the author in the clinic of Dr. Fred Wise, at the Mount Sinai Hospital Dispensary in March, 1919. An examination of the Mount Sinai Hospital records showed that the patient had reported there with a history of a persistent disease of the skin that had resisted all forms of treatment. On her first visit to that dispensary, she had revealed a universal redness with discrete and confluent,

papular lesions, forming large patches, which virtually covered the entire cutaneous surface. She was transferred to the hospital and admitted, on March 26, 1919, to the service of Dr. Herman Goldenberg, who confirmed the diagnosis of universal psoriasis. Treatment here had consisted of rubbings with chrysarobin ointment. She showed slow improvement, but subsequent to autoserotherapy, which consisted in the removal of her blood and the reinjection into the muscle of 10 c.c. of serum, the lesions involuted rapidly, and she was discharged, on May 24, 1919, with only a slight erythema and scaling.

The patient stated that subsequent to her discharge from the Mount Sinai Hospital she had felt considerably better for several months, but the eruption had begun to reappear gradually with more intense itching, and it had become progressively worse until her admission to the Cornell Skin Clinic.

*General Medical Examination.*—The patient had a regular pulse rate of 88 and a temperature of 98.4 F. She weighed 116 pounds (52.6 kg.). She showed a systolic blood pressure of 104 mg. of mercury, and a diastolic of 68 mg. of mercury. There were no tremors of the hands, no exophthalmos, Von Graefe's sign nor enlarged thyroid, but the lymphatics were generally palpable. The reaction of the pupils was regular. The tongue was white and very rough, with enlarged papillae. She had a scar at the midline of the abdomen from an appendectomy. The examination of the heart and lungs disclosed nothing abnormal. The tendon reflexes were normal. A musty odor from the body was perceptible. The patient's head was well shaped, and showed no abnormalities.

*Laboratory Findings.*—The examination of the urine revealed nothing abnormal, and a Wassermann test of the blood was negative. The blood revealed 90 per cent. of hemoglobin and 8,000 white blood corpuscles. The differential count gave the following results: polymorphonuclear leukocytes, 65 per cent.; lymphocytes, 30 per cent.; large mononuclear leukocytes, 2 per cent., and eosinophils, 3 per cent. The chemistry of the blood taken on the same day showed 100 mg. of sugar, 24 mg. of nonprotein nitrogen, 12 mg. of urea nitrogen, 2.5 mg. of uric acid and 0.7 mg. of creatinin per hundred cubic centimeters of blood.

*Basal Metabolism.*—The patient weighed 115¾ pounds (52.5 kg.), and her body height was 157 cm. Her pulse was 78, respiration 20, and temperature 98.8 F. There was an increase in the basal metabolic rate of 43 per cent. During the entire examination, the patient was very nervous and frequently had involuntary tremors. Because of this high basal metabolism rate, it was decided to repeat the examination. On April 13, she weighed 116¾ pounds (53 kg.). Her pulse was 74, respiration 16, and temperature 98.4 F., and she showed an increase in basal metabolic rate of only 17 per cent. Subsequent to the first determination of the basal metabolism, Dr. Bradbury of the medical department expressed the opinion that there were no clinical evidences of hyperthyroidism, and that the basal metabolism should be confirmed, because the area of skin involved in this patient must have produced considerable disturbance in the heat regulation. She probably lost much more heat than normal persons, and this factor would have to be considered in any discussion of basal metabolism, whether the rate were high or low. This might also explain her feeling of chilliness.

*Dermatologic Examination.*—The patient had a universal eruption made up of large, confluent patches, which covered the entire trunk and upper extremities, except for small scattered areas disclosing apparently normal

skin on the upper part of the arms and in the region of both axillae. The skin in these areas was livid red, thickened, lichenified and covered with shiny, white and yellowish-white, fine and heavy scales. These scales when scratched became more glistening, and when removed revealed the characteristic bleeding points of psoriasis. On the greater part of the dorsum of the hands and fingers, a similar condition was visible. The palms were only slightly reddened,

Fig. 2.—Tumors on front of legs.

but revealed a thickening of the skin with loss of elasticity, and numerous, common pinhead sized to mourning pinhead sized, elevated, scaly, hyperkeratotic papules. The neck and face were almost entirely covered with an eruption made up of one large, confluent, bright red patch, which was shiny, smooth and demarcated from the surrounding skin by sharp borders. Small islands of pinhead-sized to bean-sized lesions characteristic of psoriasis were surrounded by this main patch. The eruption extended along the thighs, but

as it approached the middle, the diffuse areas gave way to large, linear, reticulated patches, which were a livid red, elevated, sharply demarcated, and covered with thick, dirty-white scales and thick, yellowish crusts. These patches, on palpation, felt firm and in places doughy and elastic. On both legs, in the region of the knee, there were infiltrated, lichenified bright red patches.

The most unusual feature, however, occurred on both legs, from the knees downward. On these sites, both anteriorly and posteriorly, there were innumerable, lentil to quarter-dollar-sized tumors. These growths were distinctly elevated as much as three quarters of an inch (1.8 cm.) above the surface of the skin. They were rounded, oval, flat and regular and were dark red and purplish red, covered with dirty-white scales and thick layers of yellowish crusts. The surface underneath, when the crusts were removed, revealed smooth, shiny, red tops. Besides these distinct tumors, there were tubercles and infiltrated plaques. These tumor-like lesions felt firm, hard and doughy. On the backs of the legs were large, confluent, infiltrated plaques, covered with grayish-white scales and greenish-yellow crusts. The surfaces of these lesions were not verrucous in nature, but were rather smooth and shiny when the crusts and scales were removed. The plantar surfaces of the feet showed callosities and hyperkeratotic papules. On the dorsum of the toes there were small infiltrated tubercles. The nails of the toes were dry, yellowish, friable and scaly, while those of the fingers were dry, only slightly discolored, and showed stippling. The whole scalp was red, edematous, and covered with an abundance of yellowish-white crusts. The hair was of normal distribution, but the outer third of the eyebrows was absent. The lips were dry, thickened, scaly and fissured, and the infiltrated patches of the skin seemed to spread over the vermilion. The tongue was scrotal and showed numerous filiform papillae. Both lower extremities just above the ankle down to and including the feet were very much swollen and enlarged, probably because of the serous exudation.

A brief summary of the cutaneous manifestations of the eruption which this patient presented reveals a case of universal psoriasis associated with (1) hyperkeratoses and callosities of the palms and soles, (2) infiltrated plaques and strands on the thighs, (3) tumor-like growths on the legs, (4) involvement of the lips and (5) involvement of the nails.

*Histopathology.*—In order to study the pathology of the different types of lesions presented, pieces of skin were removed at intervals from the various sites, three pieces being taken at each sitting—one from the typical psoriatic looking skin of the trunk, one from the strandlike, infiltrated lesions on the thighs, and a piece from one of the tumor-like growths on the legs. The skin of the tissue taken at the Cornell University Medical College Clinic on the patient's first visit will be described in this paper. Since the tumor-like growths constitute the main feature in this case, the pathology of the tissue from the thigh will be discussed only in those points in which it differed from the changes observed in the tumor specimen.

All the tissue was fixed in a 10 per cent. solution of liquor formaldehydi, hardened in alcohol, embedded in paraffin and finally stained with eosin and hematoxylin.

*Pathology of the Tumor-Like Growths.*—Examination, under a low power lens, of a piece of the tissue removed from the tumor on the front of the leg revealed the fact that the main changes had occurred in the epidermis. Certain changes could be seen in the corium, consisting mainly of cellular

infiltration, which was most marked in the papillary bodies, and to a lesser degree in the subpapillary areas. Edema was also present, and the blood vessels appeared dilated.

A more detailed study of the tissue with the high power lens showed that there was a thickening of the stratum corneum produced by hyperkeratosis and parakeratosis. The layers of scales so produced were wavy in character.

Fig. 3.—Tumors on back of legs.

The outermost layer of the cells consisted of flattened, stratified, normal-staining cells, while beneath this the cells were slightly larger, looked edematous, did not stain normally, and showed the retention of the nuclei. The stratum granulosum looked normal. Beneath this, the rete showed edema, which was mainly intercellular, although there was also evidence of the presence of some intracellular edema. Wandering cells could be seen, and minute abscesses (Munro's abscesses) could be detected. The epidermis seemed very much

thickened because of the hypertrophy occurring in the rete, but this condition was confined almost completely to the rete pegs. The acanthosis thus produced consisted mainly of an elongation of the rete pegs. A slight clubbing of the tips was perceptible.

There was edema and cellular infiltration in the corium, and the bundles of collagen were swollen and enlarged. They did not show as good a reaction to the stain of eosin as is normally found, and the individual fibers looked swollen, and stained even more poorly than the bundles as a whole. The infiltration was most marked in the papillary bodies, especially around the dilated blood vessels, and was made up of large, round cells containing nuclei, fibroblasts and some polymorphonuclear leukocytes. It was found in the uppermost parts of the corium, but next to that found in the papillary bodies, the most intense infiltration occurred in the subpapillary regions. Here again, it was made up of the same types of cells and was also most prominent around the dilated blood vessels and the hair follicles. The blood vessels everywhere appeared dilated and showed enlargement of the endothelial cells.

The pathology of the tissue removed from the strands on the thighs differed from the tumor-like growth in degree only. That is, it seemed that the acanthosis and infiltration were less intense in these parts than in the tumor-like growths.

The tissue from the trunk showed a pathology similar in every way to that of the tissue from the thighs.

From the foregoing description, it is evident that the pathology coincides with the classical descriptions of the usual, typical cases of psoriasis. It is likely that the tumor-like growths were produced by more marked edema, acanthosis and infiltration. However, there was not sufficient cellular infiltration present to explain the marked overgrowth of tissue. It is possible, though, that there may have been more marked swelling and edema of the fibrous tissue than is found in the prepared sections, but because of the action of the chemicals and the heat from the paraffin, the tissues may have become contracted.

*Treatment.*—It was decided that the patient should be given no internal medication, and for local therapy she was directed to use plain grease. On April 17, fractional doses of roentgen rays were administered at weekly intervals over the various parts of the body. This was continued until October 2, but since there had been no relief and no change, it was deemed advisable to abandon the roentgen-ray therapy. During this period, the itching had become most intense. About the middle of November, the patient applied for admission to a hospital, stating that nothing had given her such relief as she had experienced from autoserotherapy. She was therefore transferred to the Beth Israel Hospital. On admission, on October 18, her cutaneous condition was primarily the same as it had been at the time of her first visit to the Cornell University Medical College Clinic, except for the fact that the heavy scales and thick crusts had disappeared with the applications of grease.

A radiograph examination of the sinuses failed to reveal any abnormality or disease. The urine, collected for twenty-four hours on October 29, showed a volume of 1,200 c.c., a specific gravity of 1.014, a trace of albumin and a few epithelial cells. The reaction was acid, and there was no sugar nor acetone present. A determination of the phenolsulphonephthalein test disclosed an excretion of 13 per cent. the first hour, and 32 per cent. the second hour, making a total of only 45 per cent.

The blood examination made on October 20 revealed 4,560,000 red blood cells, 7,000 white blood corpuscles and 70 per cent. hemoglobin. The differential count of cells showed 46 per cent. polymorphonuclear, 27 per cent. large mononuclear and 27 per cent. small mononuclear cells.

The blood count was repeated on November 1, with the following results: red blood cells, 4,000,000; white blood cells, 7,300; polymorphonuclear cells, 65 per cent., and large mononuclear cells, 35 per cent.

A Wassermann test of the blood performed on November 18 proved negative, and the blood chemistry of that date showed 0.11 per cent. of glucose; 15 per cent. of urea nitrogen; 32.5 per cent of nonprotein nitrogen and 1.1 per cent. of creatinin in 100 c.c. of blood.

Fig. 4.—Tumors on front of legs when patient was admitted to Beth Israel Hospital.

Examination of the feces revealed the presence of blood, a trace of bile and the absence of parasites.

During the time she spent in the hospital, the patient received ten injections of autoserum. The amount of blood withdrawn varied from 50 to 60 c.c. and the amount of serum injected varied from 20 to 28 c.c. These injections were given at intervals of five days. She was discharged on December 8, with marked improvement in her skin condition. In those areas in which there had been infiltration, the lesions had become flat and smooth. The face and upper part of the trunk were practically free from lesions. The tubercles and tumors of the lower extremities had become flatter, and many had disappeared. On December 11, the skin was white and smooth, the neck and trunk showed only scattered, small, red patches, and the nodules and tumor-like growths had almost completely faded. Those which persisted were smooth

and free of crusts and scales. However, a note made on Jan. 2, 1924, when she came to my office, showed that the lesions were beginning to recur in the form of small, pea-sized, elevated, round papules on the face and forearms. On January 30, there was more marked involvement of the skin, and on February 2, the whole general skin condition was very much worse. She was beginning to manifest a generalized erythroderma with exfoliation, and the tumors of the lower extremities were recurring. The patient was given six injections of 10 c.c. of her own blood, the blood being removed under aseptic conditions from the vein and immediately reinjected into the gluteal muscles. The doses varied from 7 to 10 c.c. and were administered at weekly intervals. Three days after each injection, the patient stated that she became feverish and felt dizzy. When she was last seen on April 15, her skin seemed to be less infiltrated, and more or less normal-looking skin was beginning to appear in scattered areas. The tumors were only slightly affected.

## DIFFERENTIAL DIAGNOSIS

The fact that this patient had had a universal eruption of psoriasis six years before, which had subsequently begun to develop tumors, led some of the dermatologists who had seen her to believe that the previous eruption had been a premycosis fungoides, and that she was now showing the tumor stage of that disease. It therefore became necessary to establish a correct differential diagnosis. Furthermore, because of the strong resemblance which this eruption bears to other cutaneous conditions, like parakeratosis ostracea (scutularis), keratosis produced by arsenic, psoriasis verrucosa and Kaposi's sarcoma, it is deemed advisable to mention the distinguishing features which remove these conditions from final consideration.

*Mycosis Fungoides.*—Although the history and clinical picture of the cutaneous eruption of this patient might easily have justified a diagnosis of mycosis fungoides, the histopathology at all times absolutely excluded such a possibility. In mycosis fungoides, the deep nodules which appear become elevated and enlarged, and then either disappear only to reappear elsewhere, or else begin to ulcerate; whereas, in the case of this patient, the tumors persisted on the legs without occurring on any other site, and there was no evidence at any time during the course of the disease of any tendency to ulceration. In addition, the color of the skin in mycosis fungoides is darker red and more purplish, and the itching is far more intense. The marked tumor-like infiltration of multiform cells, the broken-down protoplasmic masses in the lymph spaces and the extensive mitosis, which are so characteristic of mycosis fungoides, were not evident in the tissue of this patient. We had here simply a cornification, with subepidermal, perivascular infiltrations, edema, congestion and acanthosis typical of psoriasis. A final point, which would aid in excluding mycosis fungoides, is the fact that this patient did not respond to roentgen-ray therapy.

*Parakeratosis Ostracea (Scutularis).*—The clinical and pathologic findings in this patient likewise remove the possibility of this case being similar to the one described by Ludwig Weiss under the title of parakeratosis ostracea (scutularis). The picture described by him of nonitching, oyster-shell-like formations, cuplike in appearance, with tapering margins, from ⅛ to ½ inch (0.8 to 1.2 cm.) in thickness, which when

Fig. 5.—Universal psoriasis, while patient was at Beth Israel Hospital.

removed revealed no bleeding points but merely a denuded skin suggesting the appearance of a nipple, and thornlike horny cones projecting into the pilosebaceous follicles, differs completely from that seen in my patient. In this case, the horny layers, which compared to the oyster-shell-like formations, were entirely superficial, itched only slightly, and when removed revealed no thornlike cones—but rather, bleeding points on a convex or flat surface typical of psoriasis. Furthermore, the

curled hairs contained in the oyster-like shells and the oily, greasy appearance of the entire eruption described by Weiss were entirely absent in this case. The photographs of the whitish and yellowish laminated masses shown by Weiss, which simulate in appearance the tumor formations reported here, were made up largely of crusts and scales, whereas the scales and crusts on the solid tumor elevations of this patient were only secondary factors easily removed by emollients. This comparative

Fig. 6.—Tissue from infiltrated strands on thighs; thickening of epidermis mainly due to downgrowth of rete pegs; Munro's abscesses visible; papillary and subpapillary cellular infiltration.

study of the two cases obviously justifies a differential diagnosis, establishing the case here described as one of psoriasis with tumor formations.

*Keratosis Produced by Arsenic.*—This patient showed none of the symptoms commonly associated with dermatoses caused by arsenic. For example, there was no pigmentation, no diarrhea nor evidence of neuritis, and no arsenic was found in the urine at any time. Moreover,

the lesions after having cleared up, recurred while the patient was under observation, and no arsenic had been applied locally or administered internally.

*Kaposi's Sarcoma.*—It is the usual occurrence for Kaposi's sarcoma to attack the male sex in later life. The small, mushroom-like, livid and almost purplish-black tumors of this disease often appear pedunculated

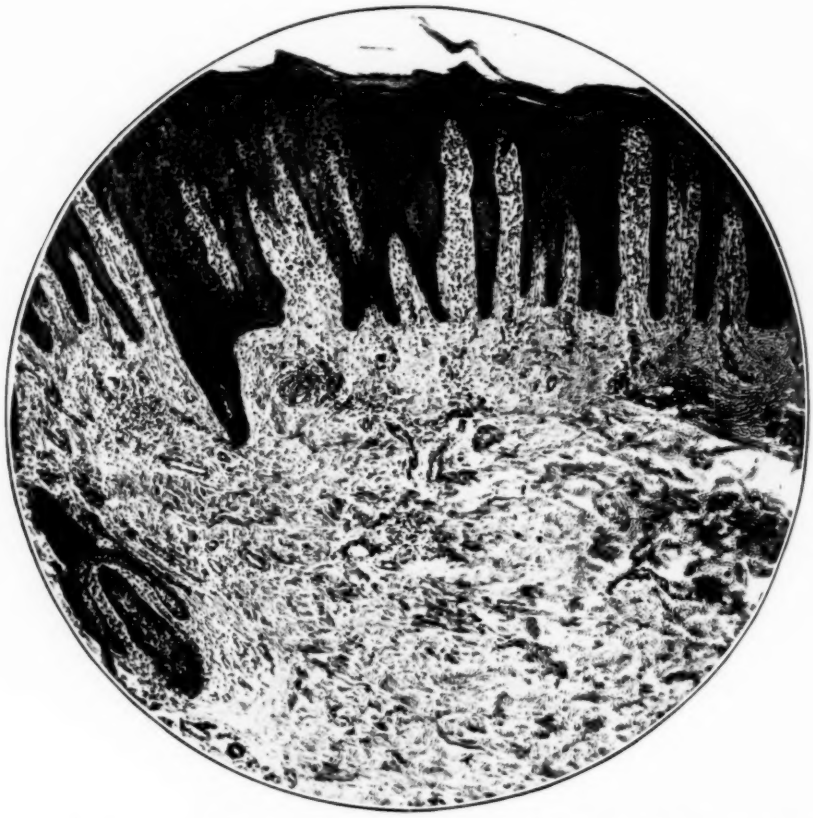

Fig. 7.—Tissue from tumor on leg; changes observed similar to those observed in tissue from thigh, differing only in more marked intensity of reaction.

and show a tendency to hemorrhages and occasionally to ulceration. The pigment and infiltrations are also of hemorrhagic nature. Since these characteristic features are entirely lacking in the case described by the author, and since the pathology of the two conditions differs widely, the decision reached must be opposed to a diagnosis of Kaposi's sarcoma.

*Psoriasis Verrucosa.*—The dry, warty appearance and papillary hypertrophy of the lesions of psoriasis verrucosa are entirely unlike the

firm, doughy, infiltrated, tumor-like formations seen on the legs of the patient here presented.

## SUMMARY AND CONCLUSIONS

A report is made of a case of universal psoriasis complicated by the presence of what the author considers a hitherto undescribed feature of tumor-like lesions. The history and appearance of the lesions, when first described, suggested the possibility of mycosis fungoides, but a more detailed clinical study and microscopic examination of the excised tissue excluded this as well as other possibilities, such as psoriasis verrucosa, Kaposi's sarcoma, parakeratosis ostracea (scutularis) and keratosis caused by arsenic.

The tumors showed a pathology which differed in no way from that observed in a typical case of psoriasis; and the microscopic findings of the tissue from the general eruption and the infiltrated strands on the thighs were similar to those seen in the tumor growths, differing only in degree of hypertrophy of the rete pegs, the infiltration and the intensity of the edema. The tumor growths were even more edematous than was shown under the microscope, and it was concluded, therefore, that the tissue must have contracted considerably by means of the chemicals and heat during the preparation of the slides.

The strandlike, elevated infiltrations of firm and doughy consistency on the thighs, and the involvement of the lips and nails were also unusual features.

Arsenic may possibly have affected the original lesions by stimulating the tumor formations, but there was no strong evidence of this having been the case. It is noteworthy that the characteristic clinical lesions and tumors both disappeared subsequent to autoserotherapy, and that on cessation of this form of treatment, the lesions recurred. Autohemotherapy caused a slight involution of the lesions, thus modifying the eruption, but no radical change was produced by this form of treatment.

5 East Fifty-Third Street.

# LICHENOID SARCOID

## AN UNUSUAL CASE*

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Forms of cutaneous tuberculosis which present clinical variations from the commonly described types are not unusual. At the joint meeting of the New York, Boston and Philadelphia Dermatological Societies in the latter city in 1924, three cases of cutaneous tuberculosis were presented, not one of which corresponded clinically to the types classified in the textbooks. The diagnosis of one of these cases, which I presented from the clinic of Dr. Jay F. Schamberg, was arrived at only after a biopsy and histologic study had been made. Its clinical appearance and evolution differ markedly from the usual types of sarcoid.

### CASE REPORT

*History.*—A colored woman, aged 27, married at the age of 24, had been pregnant but once, and then had had a miscarriage at the third month. There was no history of any member of the family ever having had pulmonary tuberculosis or any cutaneous disorder. Seven years before I saw her, the patient noticed a single "white spot" on her thigh the size of a quarter of a dollar. New spots of similar appearance appeared from time to time, involving the thighs, buttocks, arms, shoulders and upper part of the back. As the lesions aged, they gradually became elevated or assumed a papular character. (The patient, repeatedly questioned about this, each time insisted that the patches of depigmentation occurred first, and that in these patches the ultimate elevated lesions appeared.) After a time the papules would begin to flatten again and gradually disappear, leaving no trace. Other than a local pruritus, the cutaneous manifestations gave rise to no symptoms. Three years before, the patient had had a severe cold, which was followed by a persistent cough. This cough was always worse in the morning and was accompanied by the raising of a profuse white sputum. On a number of occasions, she had vomited small amounts of bright blood. There was no history of night sweats. The patient had noticed a gradual loss of weight, which in the six months previous to examination had amounted to 14 pounds (6.4 kg.). Occasionally she had dyspnea and lumbar pains, but no pains in the chest. For several months she had had nocturia, four and five times.

*Examination.*—The patient was moderately well nourished, weighing 123 pounds (55.8 kg.). The scalp and face were normal in appearance, as were the mucous membranes of the mouth and nose. The pupils were equal and reacted promptly to light and in accommodation. There was a slight axillary

* Contribution from the Department of Dermatology-Syphilology, Graduate School of Medicine, University of Pennsylvania.

and inguinal adenitis; the spleen and liver were not palpable. The knee reflexes were normal.

The chest was moderately narrow and quite flat. Movements were apparently normal in both sides. On palpation the expansion at the apexes was apparently less than normal, although this was slight. Tactile fremitus was increased over the apexes. Percussion gave but little information, but there was a slight dulness above the clavicle. On auscultation the breath sounds were enfeebled over the apex of each lung. There was a slightly respiratory murmur over the right apex. Fine râles could be heard at the apexes and also near

Fig. 1.—Depigmented patches of the arms and shoulders, some of them showing beginning development of lichenoid papules.

the bases of the lungs. Following coughing, moist râles were distinguishable over the apexes, particularly over the right one.

Scattered over the upper arms, shoulders, upper back, buttocks and thighs were a number of patches of depigmentation and elevated lesions. The predominating lesions on the upper half of the body were the patches of depigmentation which varied in size from that of a pea to that of a half dollar. These were present to a lesser extent on the lower half of the body. Close inspection of some of these patches revealed lichenoid papular lesions about the size of a pinhead, and varying in number from one to many. The other type of lesion, the type predominating in the lower half of the body, was the patch of closely

Fig. 2.—The buttocks, showing patches of depigmentation and a few well developed lichenoid patches.

Fig. 3.—Close view of left buttock, showing a well developed lichenoid patch composed of closely grouped, flat topped papules.

grouped lichenoid papules. In brief, these patches were composed of many shiny, flat topped, papular lesions closely grouped together. Their appearance was not unlike the appearance of patches of groups of lichen planus papules. In some instances it was clearly seen that these elevated plaques were superimposed on an area of depigmentation.

*Laboratory Examination.*—The specific gravity of the urine was 1.024; the reaction was slightly alkaline; tests for albumin, sugar and indican were negative. Tubercle bacilli were not sought. The Wassermann reaction on the blood was negative. A white and red cell count and a differential count were not made.

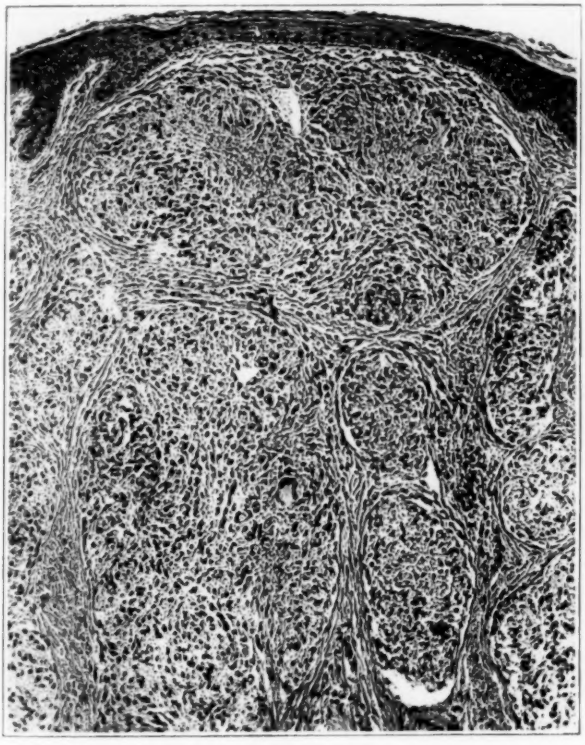

Fig. 4.—Low power magnification of a section of a lichenoid patch, showing nests of cells enclosed by trabeculae of connective tissue.

The roentgenologic department of the Polyclinic Hospital, in charge of Dr. George Pfahler, reported as follows: "There is evidence of tuberculosis in both lungs. There is fibrosis and peribronchial thickening, with probable caseation in the apexes of both lungs extending from the hilus regions."

Examination of the sputum for tubercle bacilli was negative twice.

*Bacteriologic Examination.*—A piece of tissue was excised from one of the most papular lesions, and one half of it was macerated and injected into two guinea-pigs. After six and eight weeks, respectively, these guinea-pigs were killed, and no evidence of tuberculosis was found in either instance.

*Histologic Examination.*—A biopsy was performed early for the purpose of arriving at the correct diagnosis. The piece of tissue was fixed in alcohol,

imbedded and cut in paraffin. In making stains, hematoxylin and eosin, polychrome methylene blue and carbol fuchsin and methylene blue were used.

Under low magnification the picture was typically that found in sarcoid—nests of cells surrounded by trabeculae of connective tissue. Under higher magnification these nests of cells are seen to be made up chiefly of lymphocytes, epithelial cells and occasionally a giant cell of the Langhans type. There were no areas of caseation visible in any of the sections, nor were there any vascular changes worthy of note. A biopsy of one of the depigmented areas was sought, but a large keloid had appeared at the site of the first excision, and the patient steadfastly refused further operative procedures.

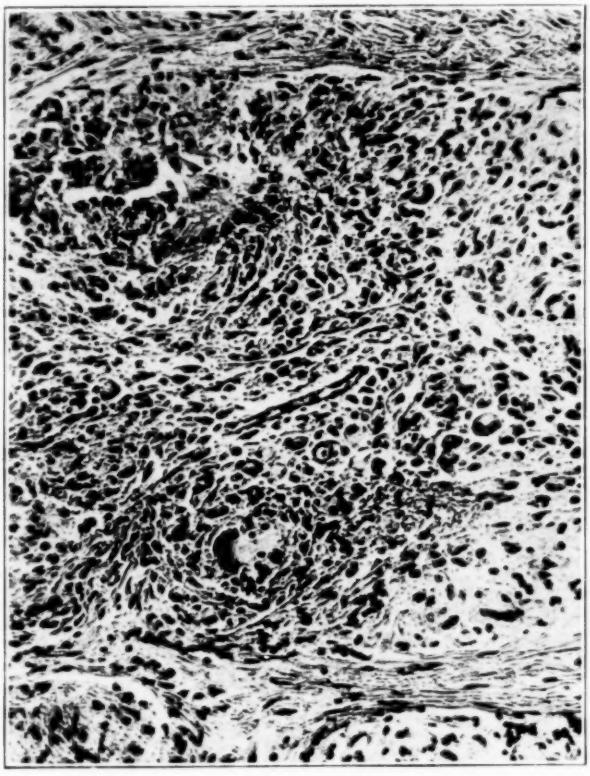

Fig. 5.—High power magnification of a nest of cells showing epithelioid cells, lymphocytes and giant cells of the Langhans type.

A number of sections were stained for tubercle bacilli, but in no instance were any organisms demonstrable. This is in accordance with the results of others (with the exception of Kyrle) who have sought for tuberculosis bacilli in sections of sarcoid.

*Treatment.*—After a diagnosis was made by biopsy, the patient was placed on increasing doses of old tuberculin and a forced diet. There was no evident change in the lesions from the first six injections of tuberculin. At this time the patient was sent to a sanatorium for treatment of pulmonary tuberculosis. Some months later a note from the hospital stated that the elevated plaques were slowly involuting.

COMMENT

1. The case reported presented a most unusual form of sarcoid; it appeared first as areas of loss of pigment in which lichenoid plaques develop.

2. The condition was associated with a pulmonary tuberculosis, which apparently developed four years after the appearance of the cutaneous manifestations.

There still seems to be doubt as to the tuberculous nature of sarcoid. Until recently no one had reported the finding of the tubercle bacillus in sections of tissue from the nodules. In 1921, Kyrle [1] was able to demonstrate the organisms by staining in sections made from patches examined within ten days of their appearance. After this time they disappeared. Kyrle was unable to demonstrate the bacillus by animal inoculation. It was his opinion that the lesions were caused by foci of bacilli in the skin producing a focal reaction, the bacilli disappearing soon after the onset of the reaction. This work requires confirmation.

1402 Spruce Street.

1. Kyrle: Arch. f. Dermat. u. Syph. **131**:33, 1921.

# STUDIES ON HAIR

## WITH SPECIAL REFERENCE TO HYPERTRICHOSIS

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## VII. HYPERTRICHOSIS

Hypertrichosis, in common with some other forms of aberrant hair growth, is undoubtedly due to a variety of different causes. Like alopecia, it may be present at birth, or may appear at any subsequent period of life. But unlike alopecia, it is probably never directly induced by any pathogenic organisms, and it is probably correct to state that there is as yet no satisfactory evidence that it can be induced by external factors. That there may be predisposing external causes cannot be denied, and every effort should be made to establish the fact of their existence, but in the light of our present knowledge hypertrichosis seems to be preeminently a matter of constitution. And so it becomes a question of interpreting hypertrichosis in terms of variation in the complex of factors which usually result in ordinary hair growth. To this end, studies directed at an understanding of the conditions of normal growth in some respects promise quite as much toward the solution of the problem of hypertrichosis as investigations confined to cases which actually show an excess growth of hair.

The proper definition for hypertrichosis and the characterization of different types of the condition have given no little concern to many of the numerous writers on the subject. There are several rather distinct manifestations, including general and localized excesses of hair development and those which do and which do not seem to be associated with pathologic disturbances. But in general the term is applied to all cases in which the growth of hair on any part of the body is in excess of the amount usually present in persons of the same age, race and sex as the subject. Attempts at greater refinement than this, in the absence of an understanding of the etiology, are likely to be more misleading than otherwise.

### CLASSIFICATION OF FORMS OF HYPERTRICHOSIS

For purposes of description, however, and for study, it is convenient to classify the cases in groups based on similarity of appearance or on the presumed etiology. Several attempts in this direction have been made, but all with indifferent success, as numerous critics have pointed out. Virchow recognized three classes of hypertrichosis: (1) excess hair of the masculine type in woman, (2) excess hair complicated by the presence of nevi, (3) "edentate" forms of hypertrichosis.

Bartels proposed a classification which has often been followed, at least in part. His grouping of manifestations of excess hair is as follows:

1. With evidence of irritation as a causative factor:
   - (*a*) On nevi
   - (*b*) Hypertrichosis irritiva
2. Without evidence of irritation:
   - (*a*) Heterogeny (growth of hair normal for the opposite sex)
   - (*b*) Heterochrony (normal for the sex but not for the age of the person)
   - (*c*) Heterotopy (not normal for either age or sex):
     - A. Hypertrichosis partialis
     - B. Hypertrichosis universalis.

More detailed, and in some ways less open to criticism, is Chairi's classification of all forms of abnormal hairiness in the following eleven categories: (1) abnormally developed lanugo, (2) excess development of the hair of puberty, (3) early development of the hair of puberty, (4) hair of puberty abnormal for the sex of the individual, (5) senile hypertrichosis, (6) hypertrichosis of the "dog men," (7) hypertrichosis on unaltered skin, (8) hypertrichosis due to action of nerves, (9) irritative hypertrichosis, (10) hypertrichosis from trophic disturbances and (11) the hair of nevi pilosi. More precise knowledge is likely to reduce the number of forms to less than these eleven, which Chiari considered distinct from each other. In the following discussion hypertrichosis present at birth will be considered first, followed by a review of forms that appear later in life.

## HYPERTRICHOSIS UNIVERSALIS

Congenital hypertrichosis sometimes involves practically the whole hair-bearing surface of the body, but at other times is restricted to localized manifestations. The two types usually have little in common, and both are probably essentially identical with similar hair growths which do not actually appear until later. An extensive hypertrichosis present at birth or appearing within the first few months or years, and persisting thereafter, is generally regarded as a rather distinct type. In the classifications just presented, it appears as number 3 in Virchow's grouping, as 2 *c B* in Bartels' and is 6 in Chairi's. It is generally designated in the literature as hypertrichosis universalis congenita, hypertrichosis lanuginosa or pseudohypertrichosis lanuginosa. The term pseudohypertrichosis has been employed with reference to the most hairy of all people on the assumption that the covering is lanugo and not "hair." Subjects showing the anomaly are often referred to as

"dog men," "ape men" or "Haarmenschen" and several of them have been exhibited as representing tribes of wild men or the "missing link." Typical cases are few, perhaps not more than thirty unrelated families being known. According to von Luschan, one new case occurs in about every one thousand million. When the trait once appears, it is transmitted in heredity as a simple mendelian dominant.

The condition is a most interesting one, and has inspired a mass of literature out of all proportion to the number of cases that have been reported. In its typical expression, judging from the most careful descriptions, the scalp is covered by hair that tends to be rather softer than normal, at least until relatively late, and is not differentiated by any line of demarcation from a thick growth of lanugo-like (transi-

Fig. 55.—Hypertrichosis Lanuginosa in a family from Upper Burma (Le-Double and Houssay). *A*, Shwé-Maong; *B*, his daughter Maphoon; *C*, one of her sons, probably Moung Phoset.

tional?) hair on the forehead, face and neck. The whole face, including the upper eyelids and nose, is covered with a thick coat of long soft hair, light in Russian representatives, dark in those from India. The ears are very hairy and characterized, in several unrelated cases, by long drooping tufts projecting from the external meatus. Eyelashes, typical eyebrows and beard hairs are said by some authors to be wholly lacking and replaced by soft hairs like those of the forehead. Likewise pubic and axillary hairs are not present in the normal form but replaced by the same "exaggerated lanugo" that covers the rest of the body and limbs. It is on the head, however, that the aberrant growth is most excessive. On other parts of the body, the hair is often relatively shorter and may even be normal over small areas.

Typical examples of this "universal hypertrichosis" are represented in the accompanying illustrations, which may be presumed to be of a fair degree of accuracy. Some others, such as the famous pictures from Ambras Castle in Tyrol and sketches of Barbara Urslerin are perhaps of doubtful authenticity, although they are vouched for by Bartels. It is probably significant that the condition is often essentially the same even though it appears in unrelated persons from widely different places. The family of Shwé-Maong from the town of Ava in upper Burma and that of Adrian Jefticheff from Russia may be cited as examples of this rare condition. These people were examined by numerous competent students. Shwé-Maong (Fig. 55 *A*) is said to have been born of normal parents and to have been normal himself at birth except for excess hair on his ears. Shortly after birth, he developed the characteristic growth

Fig. 56.—Three Russian "dog men." (Regrouped from LeDouble and Houssay). *A*, Adrian Jefticheff; *B*, his son Fedor; *C*, Stephan Bibroski.

of hair over the body that typifies the dog man. He is reported to have been of rather superior intelligence. Of his four children, two, and possibly three, were normal, but at least one daughter, Maphoon (Fig. 55 *B*) was of the same type as her father. In her case also, the condition was less pronounced at birth than a little later. Maphoon in turn had at least three children, one of whom was normal and, another, called Moung Phoset, had a more pronounced case than either his mother or grandfather. Adrian Jefticheff (Fig. 56 *A*) was born in Russia about 1820. Nothing reliable is known of his antecedents, but there is no evidence that he was related to the Warsaw family which produced the similar Stephan Bibrosky (Fig. 56 *C*). Jefticheff is said to have had two children, a hairy daughter who died in infancy, and a son Fedor (Fig. 56 *B*) who closely resembled his father. The Jefticheffs were extensively exhibited in Europe.

An understanding of the true nature of this form of hypertrichosis is complicated by a number of uncertainties. It has been suggested by Unna and others that it is the result of an arrest of development, the hair of these dog men being in reality an extensive growth of lanugo. Under the stimulus of this idea, several attempts were made to find out whether the arrangement of hair on the adult dog man corresponds to the arrangement on the normal fetus, but there are so few differences known to exist between the usual arrangements in fetus and adult that the comparisons have yielded unsatisfactory results, although the grouping in this hypertrichosis is said to be that of true lanugo.

Virchow pointed out that in many of these cases the teeth were mostly lacking, and he tried to find some atavistic tendency in the combination of abundant hair and deficient teeth. His quest led him to the unpromising group of edentates as representing approximately the condition to which these hairy men are reversions! This idea of atavism has been favorably received by some and severely criticized by others. In any event, a deficiency of the dentary system seems to be fairly well established as one of the characteristics of the typical dog man. The dental formulas for several of the subjects may be indicated after the manner of Bartels as follows:

| | | | |
|---|---|---|---|
| Shwé-Maong | $\frac{00400}{01400}$ | Adrian Jeftischeff | $\frac{01000}{51415}$ |
| Maphoon | $\frac{00400}{00400}$ | Fedor Jeftischeff | $\frac{00000}{00400}$ |
| Moung Phoset | $\frac{01210}{01410}$ | Stephan Bibrosky | $\frac{00000}{00200}$ ? |

In this scheme, the figures above the line are for the upper jaw, those below for the lower jaw. The middle figure indicates the number of incisors (normally four), the next figure on either side represents the number of canines (normally one) and the other figure the total number of premolars and molars (normally five on each side). It is not certain that any of these people have permanent teeth. Shwé-Maong shed his milk teeth at the age of 20.

Despite what might seem to be a pertinent objection, namely, that an extensive growth of hair, sometimes making its first appearance as late as the sixth year, does not look like an arrest of development, Unna pressed his claim that it is such, and he has been followed by a number of prominent investigators, among them Sarasin and von Luschan. It is interesting to find Virchow maintaining that the condition represents a "normal" atavistic reversion, and von Luschan insisting that it must be considered as a pathologic manifestation. Sarasin goes to considerable pains to link up this condition with neoteny, considering it as a partial persistence of embryonic or fetal conditions in one system, associated with normal development in other systems. In the hair men

it is the teeth and hair of ectodermal origin that remain behind in their development. The time at which the inhibition takes place is wholly unknown. Von Luschan set it at an early period of fetal life, Sarasin at a late period.

No one seems to have taken into account fully the time relations in the development of teeth and hair germs. It is noticeable in the cases of universal hypertrichosis which have furnished accurate data, that the incisors are most often present, particularly on the lower jaw. These teeth are normally ready for eruption during the first year, and germs of the permanent incisors are laid down before this time. In normal persons, the germs of all the permanent teeth except the third molars are present by the end of the second month after birth, and yet the onset of marked hypertrichosis associated with deficient teeth is often later than this. In other words, at a time corresponding to the appearance of hypertrichosis in these subjects, not only the milk teeth but the permanent teeth of a normal infant have made a good start toward development. This suggests either that what causes the hypertrichosis definitely tends to inhibit further tooth growth, or that the actual cause of both tooth and hair variation is effective much earlier than the time of birth. The development of hair and teeth has not been studied in the same series of embryos, but there is little doubt that the teeth germs on the whole rather precede the hair germs in their earliest formation. All of the germs for the twenty milk teeth are reported to be present by the middle of the third month of intra-uterine life, which is earlier than the period at which hair germs are found over the greater part of the body. It consequently seems out of the question to assume that the inhibition is one which occurs during a very early period. Since it apparently does not become effective until after the teeth have started to develop, it must act as an inhibitor of their growth rather than preventing their first formation.

In his extensive study of the production of abnormalities of development, Stockard has been led to postulate a critical period for each organ, a time when it begins to differentiate vigorously and when its future character is largely determined. Adverse conditions of moderate degree acting on the embryo either before or after this period do not affect the organ in question, but acting at the critical period they may produce permanent modification of its structure. Such modification is brought about, according to Stockard, through the slowing down of growth at the very moment when it should normally be most active. A consequent dispersion of energy and lack of unified and harmonious coordination in the growth processes of all the cells involved in the production of the particular organ result in an aberrant form which, in general, cannot return to normal, however favorable conditions may subsequently

become. From this point of view, it might easily be imagined that at perhaps the sixth or seventh month of intra-uterine life some inhibiting factor becomes effective on both hair follicles and enamel organs. The former at this time are in an active phase of development, already producing lanugo, which in consequence of the temporary inhibition, they continue to do throughout life, never subsequently acquiring the capacity for production of normal down or terminal hair. The tooth germs must be at a stage where only the most advanced ones, particularly the lower incisors, are able to survive.

This, in somewhat modified terms, is essentially the position of those who see in hypertrichosis lanuginosa and the associated tooth defects an expression of a temporary embryonic arrest of development. It has some weak points. Particularly difficult is it to harmonize the late appearance (at 3 or 4 years) of the excess hair with tooth deficiency which has appeared before this time. The possibility of inaccuracies in the observations and the occasional hereditary retention of embryonic conditions, seemingly due to arrest, such as harelip and coloboma, help indirectly to support the view, but it remains unexplained why the "persistent embryonic lanugo" should become so greatly hypertrophied over the whole body. Waldeyer's statements, if they should be substantiated, would add another difficulty, since he claimed that the number of hairs in a group is actually increased in these cases, and this is not easily consistent with an arrest of development.

In the absence of additional material or first-hand information, it would be out of place to develop a new hypothesis. It may be mentioned, however, in passing that all the conditions might be explained on the assumption that an occasional mutation occurs in the human germ plasm, resulting in a modifying gene which greatly influences the development of the hair, giving the whole "pelage" a character intermediate between lanugo and terminal hair, and at the same time exerts a disturbing influence on the development of teeth, which are somewhat homologous to hair. A slightly different mutation which also influences the production of teeth may be assumed to be the cause of congenital alopecia. Such an interpretation would at least be consistent with current ideas in the field of animal genetics.

If new cases of hypertrichosis universalis should appear, it would be of the greatest importance to determine the character of the hair, the number of hairs in a group, and especially the history and condition of the teeth. It would be highly desirable if by roentgen ray or otherwise a search for unerupted teeth were made. The nails should also be examined. Further, the presence or absence of hair on the last two phalanges of the fingers and toes might throw some light on the mode of action of the causal factor.

CASES OF DOUBTFUL RELATIONSHIP

Besides the cases which it is universally agreed belong to the group showing hypertrichosis lanuginosa, there are several concerning which opinion is not unanimous. The most famous is that of Julia Pastrana (Fig. 57). She was a Mexican, who is said to have married an American named Lent, and was in no way related to "Zénora Pastrana" a European subject with marked hypertrichosis of a different kind. The uncertainty about Julia Pastrana's status is due to the fact that her hair was rather coarse and that she had all of her teeth except the four upper incisors and two canines. The statement that she had a double set of teeth which accounted for her marked prognathism does not seem to have been correct. She died at the age of 26, at the birth of her only child, who was very hairy like his mother.

Fig. 57.—Julia Pastrana (LeDouble and Houssay).

A full face view of a Siamese woman (Fig. 58) is presented by both Friedenthal and Le Double. It is presumably an authentic case, possibly copied from Hutchinson, and seems to represent an intermediate stage between a generalized covering of soft lanugo-like or transitional hair and localized hypertrichosis of the terminal hair. Between this condition and the almost complete absence of hair a series of finely graded cases could easily be arranged. Despite the numerous objectors, Waldeyer was probably correct in saying that a complete scale exists between dog-men and people with little hair. This need not mean, however, that there is an equally graded series of direct etiologic causes. It is well known, as Johannsen's work has emphasized, that individuals of identical germinal constitution fluctuate considerably, so that two different manifestations may seem to overlap. In other words, it is probable

that there are a number of distinct mutations or other etiologic factors which, operating in conjunction with other constitutional and environmental factors, produce results which are sufficiently variable to permit of such an artificial grading as Waldeyer suggested.

### LOCALIZED HYPERTRICHOSIS

Hypertrichosis that is strictly localized is also frequently congenital. Besides the reported cases of infants born with full beards, there are

Fig. 58.—A Siamese woman with hypertrichosis (Friedenthal).

well authenticated instances of tufts of long hair, especially in the cervical and lumbar regions, being present at birth and persisting throughout life. These hairs are sometimes slightly pigmented, but often nearly as dark as the capillus. Rarely have they been adequately described, but in a few cases it is reported that although of considerable length they are entirely without a medulla. In most cases, their direction is that of normal hair in the same region. These localized patches occur either on skin that shows no obvious change or on skin that is variously

modified, as in pigmented nevi. In some instances, while the nevi were noticed at the time of birth, no excess hair was observed till considerably later. This indicates that in circumscribed as well as in general hypertrichosis the excess growth of hair may make its first appearance at any time during a period beginning in late fetal life and extending through the first few years of childhood. If the hairy nevi are due to an hereditary factor, as they may often be, there is little evidence that the expression of the tendency is specifically localized. It would seem probable that the skin of different persons varies in its capacity to develop nevi without having any inherent tendency to develop them in specific locations. Large pigmented nevi extending over nearly the whole thigh and covered with a rather abundant growth of dark hair have been observed in unreported cases and are also recorded and figured in the literature. Somewhat similar hair growth is reported to occur sometimes as a temporary manifestation associated with minor lesions and hyperemia.

The tufts of hair that occur along the spine are of especial interest. It was first pointed out by Virchow that the American woman, Miss Belle Carter, who was exhibited about Europe as the "lady with a horse's mane" presented definite indications of spina bifida in the vertebrae beneath the "mane." Since this observation it has been noticed that an association between spina bifida and a tuft of hair is a common one, and some have even gone so far as to regard the latter as a sure indication of the former, even when a roentgen-ray examination failed to confirm the diagnosis. Three cases in which spina bifida was recognized are illustrated in Figure 59. Cases are described in which the hair from the sacral region formed a definite tuft eight or ten inches long, suggesting the tail of a faun. Indeed Féré believes that such cases gave the Greeks their idea of the faun's tail which, it may be noted, is portrayed as arising from the sacral region, and not from the coccyx, as a morphologist might have expected.

That a moderate growth of terminal hair in the lumbosacral region is common must be obvious to every one who has occasion to see any considerable number of naked subjects. It was observed relatively frequently in examination of demobilized soldiers and may often be seen in gymnasiums. It is not likely that many of these subjects suffer from spina bifida, and one needs to be especially cautious in assuming that abundant hair in the lumbar region is indicative of this condition. But in the cervical or upper thoracic region the association is so frequent that there can be little doubt that the two conditions are intimately related. What the common cause may be is still unknown. Local inflammations, temporary hypoplasias and trophic disturbances have each been suggested, the latter two being perhaps thought of as associ-

ated with rachitis. Wanjura considers spina bifida as due to a circumscribed arrest in development, and points out that the condition most frequently occurs at the two places where the neural canal is last closed over. This theory explains hypertrichosis associated with spina bifida as being due to a temporary localized arrest of the cutaneous as well as the skeletal elements, and is in line with the view which would explain universal hypertrichosis as being due to a temporary arrest involving the whole hair-bearing area.

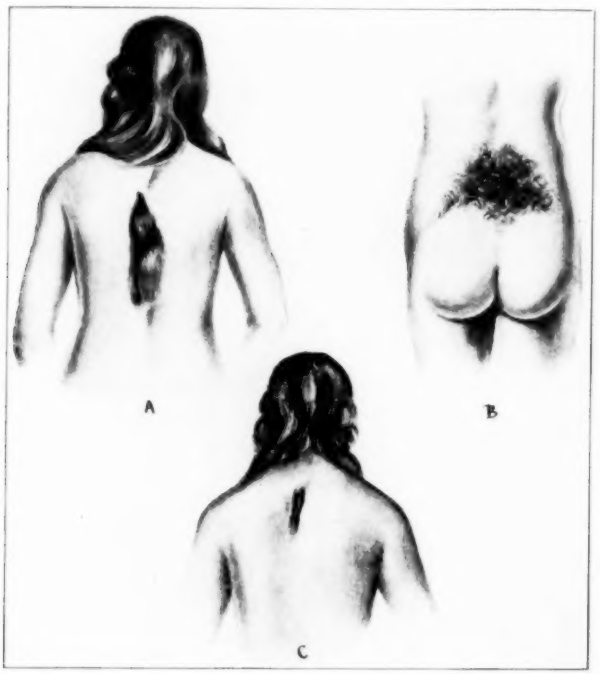


Fig. 59.—Three cases of hypertrichosis associated with spina bifida occulta. (*A* and *B* from Friedenthal, *C* from Neugebauer.)

Schein, however, regards the matter from a diametrically opposite point of view. He believes that growth energy results, so far as the cutaneous system is concerned, in the production of a greater expanse of skin or in more hair. The little triangle of cutaneous tissue which is closely bound over the sacrum cannot expand in proportion to the rest of the body surface during growth and consequently it produces hair. This accounts for sacral hypertrichosis without spina bifida. In the presence of spina bifida in other regions, Schein seems to think there is a less active growth of skin than normal. The scalp grows slowly, hence hair on the head. Like many other rather dubious explanations, this fails to account for the continued growth of hair throughout life.

Whatever may be the true cause of these forms of general and localized hypertrichosis which are either present at birth or show indications of having been potentially so, there is at least no evidence that they should be ascribed to endocrine disharmony. Especially in the case of nevi and the tufts of hair associated with spina bifida does it seem evident that the immediate cause of the excess growth is some factor whose effect is very much localized. These manifestations indicate that changes in the germ plasm and possibly other influences may effect an early but permanent modification of the potentialities of the hair follicle, which henceforth behaves differently from unmodified follicles. There are few statements as to the presence or absence of down among the larger hairs. It is of course conceivable that the nevus or the condition of spina bifida may continue to produce some stimulating effect even in adult life, but it is more probable that when the alteration in the capacities of the follicle is once established it persists. It would seem that this is, as it were, a constitutional alteration rather than simply a functional response to some ever present stimulus.

### HYPERTRICHOSIS OF PRESUMED ENDOCRINE CAUSATION

Early hypertrichosis, which seems to be of an entirely different sort, is relatively not infrequent. This involves the premature appearance of the adult distribution of terminal hair, the heterochrony of Bartels' classification. It occurs in both sexes but in the female is generally complicated by an increase in the amount of hair in excess of that normal to the adult. This is generally indicative of endocrine disturbance of one sort or another and the genitalia, even in young children, are frequently developed nearly or quite to the adult stage. A case described by Lesser may be reviewed briefly as an illustration of this remarkable condition. The subject (Fig. 60), aged 6 years at the time of the examination, came from a family in which no other case of abnormal hairiness was known. The child was said to have been normal in every way at birth, but during the second year a gradual enlargement of the breasts was noticed. In the third year, menstruation began and occurred eight or nine times during the next year and a half. The menstrual periods seem to have been of the same character as those of an adult but none had occurred during the preceding eighteen months. At about the time that menstruation ceased, a diffuse growth of hair appeared on all parts of the body. A depilatory paste was then used on the face, after which it is reported that the hairs became coarser. At the time of examination, the child was said to have had the appearance indicated in the figure, with a potential heavy black beard and a short but definite mustache. The eyebrows were bushy, the axillary and pubic hair especially long and abundant. The breasts and external

genitalia were like those of a young adult. The vagina and uterus were enlarged, as was apparently at least one of the ovaries. Subcutaneous fat was developed, and the child was unusually plump and well filled out. There is definite evidence here of precocious maturity involving other systems as well as the hair, and it seems most plausible to attribute the whole syndrome to endocrine disturbance. Since what seems to be

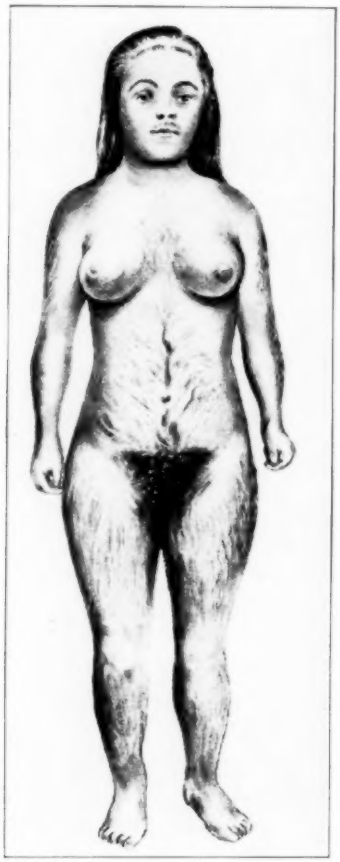

Fig. 60.—A girl, aged 6 years, showing hypertrichosis and general physical precocity (Lesser).

the same condition occurs in boys, it is not certain that the gonads are the primary cause. Nevertheless, in one case, a boy aged 6, with an extensive growth of pubic and facial hair and enlarged sex organs is reported to have returned to a nearly normal state after the removal of an abnormal testis. At other times, there is more or less definite evidence of suprarenal abnormality, as was the case in a young male

patient with these peculiarities, who was recently exhibited at the Washington University Medical Society.

This form of excess hair has sometimes been linked with congenital hypertrichosis of the type characteristic of dog men, but it is reasonably clear that the two conditions have little in common. In the one type, the condition is hereditary and characterized by a diffuse growth of soft lanugo-like or, at most, transitional hair, deficient teeth, and no sexual precocity. In the other type, the heredity is doubtful, the hair is of the terminal sort, the teeth are normal, and there is marked sexual precocity. It is to be assumed that if an adequate "endocrine therapy" were developed, the latter condition could be made to disappear, or at least could be immediately checked as soon as noticed, where it is improbable that anything of the sort would be effective in a case of hypertrichosis lanuginosa.

### WOMEN WITH WELL DEVELOPED BEARDS

A form of hypertrichosis which may be related to that accompanying premature sexual development is found in women with extensive full beards. Such women, who are often exhibited as "bearded ladies," sometimes show no other anomaly. But frequently there is reported to be considerable excess hair on other parts of the body. In many of them, the hypertrichosis appears at a very early age, for example, 6, 7 or 8 years. In other instances, probably the most numerous, it becomes apparent in the teens. More rarely, it makes its first appearance after the twentieth year. In a number of instances in which the hypertrichosis developed early, its appearance was accompanied or followed shortly by the onset of menstruation, which seems to link up this whole series of cases with those in which there is a still earlier hypertrichosis and a more pronounced early sexual development. In other words, a review of the literature fails to reveal any sharp line of differentiation between Bartels' two categories, heterochrony and heterogeny. There is little doubt that a similar condition occurs in boys and young men, but in them it is likely to pass unnoticed after the twelfth or fourteenth year.

The relation of this condition to hermaphroditism is an interesting one. Neugebauer has collected in his book descriptions of a large number of cases many of which are genuine "intersexes." Not infrequently, supposed hermaphrodites prove to be in reality male subjects with hypospadias and undescended testes. Among the latter, a typically feminine distribution of body hair is often encountered and, moreover, the breasts may appear to be as well developed as in women. As far as the urogenital system and general habitus are concerned, there are all grades between males that approach the female type, females that approach the male type, and true hermaphrodites. There are a number

of records in medical literature of adults whose sex could not be agreed on by competent clinicians. One such appeared in St. Louis a few years ago. There is consequently little doubt that many so-called bearded women were men, or at least hermaphrodites, and the genuineness of reputed cases should be regarded with skepticism in the absence of definite data as to the true sex of the person. On the other hand, careful physical measurements and thoroughly performed necropsies

Fig. 61.—Four women with beards. (Neugebauer and LeDouble and Houssay). *A*, Zénora Pastrana; *B*, Mme. Augeard; *C*, Frau Anna Hudjon; *D*, Viola M.

have clearly established the general physical normality of many women who have had beards that were even better developed than those of average men.

Four examples of women with full beards are illustrated in Figure 61. These were selected from the numerous similar cases in the literature because they had been observed by reliable authorities

and because, unlike an equally striking case examined by the writer, they had each borne one or more children, thus supplying supplementary evidence that they were essentially normal females. Zénora Pastrana (*A*), as she was known to the public, has sometimes been confused with the earlier Julia Pastrana, owing no doubt to the assumed name, but Gassner dispelled all uncertainty on this score by exhibiting at one time before the anthropologists of Munich the living Zénora and embalmed Julia. Zénora Pastrana was married and had one normal son who died at the age of 7. Mme. Augeard (*B*) is reported to have had indications of a beard at an early age and a full beard at 20. There was no excess hair on her arms, neck or shoulders, but some in the center of the chest. An older sister presented a similar appearance. The former had a son who developed only a slight mustache on reaching manhood, the latter a normal son and daughter. A photograph of Mme. Augeard, taken when she was 47, shows little change in the hair. Frau Anna Hudjon (*C*), a native of Posen, is said to have had in addition to a full beard and a luxuriant capillus, heavy eyebrows and a generally well developed pilary system. She had at least one child. As with Zénora Pastrana, there is some uncertainty as to the amount of body hair. Finally, Viola M. (*D*), a native of Pennsylvania, was first described by Duhring and later by several German authors. At birth, she is reported to have had a rather noticeable covering of lanugo on the face and elsewhere. This fell out in the course of a few weeks. At the age of 3, there was a flaxen "lanugo" on the cheeks. By the time she was 6, a stronger growth had developed and a mustache appeared. Menstruation began at 14, and two years later the hair became considerably heavier, reaching its maximum development at 18. Axillary and pubic hair developed normally. Hair was well developed on the arms and legs. Between the shoulders at about the level of the first thoracic vertebra, there was an area about 4 inches wide covered with dark hairs. All her relatives are said to have been normal. She had two, or according to Geyl, four, normal children.

These cases are typical of a considerable number that have been reported. Evidence of heredity is generally either lacking or uncertain. In about sixty records, many of which are defective, the father is reported to have had excess hair in one case, the mother in two cases and a sister in another case. It is frequently stated that the parents, brothers and sisters are all normal. Among twenty-four children of these bearded women, twenty-one are recorded as normal and three as showing hypertrichosis. More carefully recorded data might show a greater incidence of hereditary cases. If inherited at all, the etiologic factor may be recessive. In the present state of knowledge, it seems useless to speculate on the real cause of the condition. From some

points of view, the most satisfactory tentative hypothesis assumes that it is due to an early functional anomaly of the genitocortical system or of the suprarenal cortex alone, the direct effect of which may be confined to the intra-uterine period of life. Such an hypothesis tends to link up indirectly these extreme cases of hypertrichosis with hermaphrodites; but to refer to the beard in women as an expression of local hermaphroditism, as does Friedenthal, seems wholly unjustified, unless the expression is used in a very special sense, which should then be fully explained.

### GRADATIONS IN THE AMOUNT OF FACIAL HYPERTRICHOSIS

An unbroken series, starting with a type such as is represented by Viola M., and ending with a subject wholly "normal" as to hair could

Fig. 62.—Sketch of "negroid type" of hypertrichosis rather common in white women.

easily be arranged. It is one of the problems of the hypertrichosis question to determine whether the arrangement of such a series is possible through the overlapping of the manifestations of two or more essentially distinct etiologic entities or whether it is in fact a natural grouping. It is interesting to note that among women with hypertrichosis, the same sequence of extension is noticeable as in men with varying amounts of beard the mustache being most common. It has been convenient to refer to one rather frequent arrangement of facial hair as the negroid type, since a similar arrangement is often seen in negro men. This negroid type, characterized by a more or less developed mustache and a growth of hair on either side of the chin (Fig. 62) is found in women of all ages but is seemingly more common in those past middle life. This type of hypertrichosis is supposed popularly to develop at the menopause,

but Trotter was entirely unable to substantiate this view. Instead she found evidence that the average length and the average diameter of facial hairs in women increases steadily from youth to old age with no conspicuous change at any particular period. The fact that the condition is noticed in many young women while many old women do not have this hypertrichosis, as well as the fact that it cannot be produced by removal of the ovaries, counts against the idea that hypertrichosis in elderly women is due to the cessation of ovarian function. It seems far more probable that the excess hair that may appear on the faces of older women is comparable to that which appears on the ears, in the eyebrows and in other regions of men as they grow older.

### SUPPOSED CAUSES OF HYPERTRICHOSIS

Various external factors have been thought to favor the development of hypertrichosis. Those that involve superficial stimulation have been discussed previously, and need not be considered in this connection, beyond calling attention to one or two possible sources of error in determining the real causal factor. It should be borne in mind that when hypertrichosis is developing gradually, any treatment which does not actually check it will seem to favor its increase, since the hair will continue to become more abundant. In a recent article by a well-known dermatologist, it is stated that hypertrichosis is so common following acne that it has become axiomatic that nothing should be done in the treatment of acne that will affect hair growth. This probably represents the prevailing opinion of dermatologists, and it is quite possible that the acne bacillus of Engman and others actually gets into the hair follicle and sets up changes which permanently alter its function; or, as seems to be implied in the article just mentioned, the applications employed in the treatment of acne may accomplish this end. Still, it seems to be true that hypertrichosis follows acne only in those places where it occurs in the absence of acne, and the possibility suggests itself that it is the larger sebaceous glands and follicles, the probable forerunners of hypertrichosis, which predispose to acne rather than the reverse.

Numerous other external stimuli, such as bruises, application of plasters, and especially wounds of various sorts, have been reported to produce hypertrichosis. It has been claimed that hypertrichoses following wounds occur whenever the nerve in a region is injured, but in the last few years a considerable number of contributors, especially to the French journals, have denied that this is the case. No such hypertrichoses as have been said to follow paralysis are usually found, and when they do occur they are now believed by many to be due to a disturbance of the sympathetic system rather than the cerebrospinal nerves

Several diseases have been credited with leaving hypertrichosis as one of their sequelae, but the evidence of this is generally vague and unconvincing.

In regard to other supposed causes of hypertrichosis, while much has been written, there is little to be said. Hair on the forehead, espe-

Fig. 63.—Prehistoric carving on a fragment of bone, found in a rock shelter at Laugerie Basse in France (LeDouble and Houssay).

cially laterally between the eyebrows and capillus, has been claimed to be a stigma of degeneration. Hrdlicka, quoted by Le Double, found this condition in a number of cases in the New York Juvenile Asylum, but it is not stated that the subjects showed mental aberrations. It has been urged by several writers during the last ten years that hypertrichosis is

associated with insanity. Hegar, Ewarts, Dupré and Duclos, and O'Malley may be mentioned as maintaining the existence of a correlation between mental disorders and facial hypertrichosis in women, the association being due, it is assumed, to a common cause in endocrine disharmony. Dupré and Duclos present statistics to show the association between the type of neurosis and the frequency of beards. Their sequence runs in descending order of frequency from patients with senile dementia of whom 64 per cent. showed hypertrichosis, through paretic patients, other insanities, dementia praecox, idiots and imbeciles,, to epileptic patients, of whom 37 per cent. had hypertrichosis. Of 363 insane women over the age of 50, 48.8 per cent. had hair on the face, while of 637 insane women under 50, 38.7 per cent. showed hypertrichosis. The normal women examined included 188 over 50 and 820 less than 50. Thirty-eight per cent. of each of these groups had hypertrichosis. Since women under 50, whether sane or insane, show the same frequency of hypertrichosis, it is not clear from these data that there is any association between hypertrichosis and insanity, although the higher percentage of insane women over 50 with excess hair is suggestive. In over 1,600 subjects, Trotter and Danforth found the incidence of facial hypertrichosis to be essentially the same (about 27 per cent.) in college girls, clinic patients and insane women. The difference between 38 per cent. and 27 per cent. in the two studies may be due to a difference in the racial stocks examined.

Finally, there is considerable literature to show that pregnancy is a cause of increased hair growth on the face and other parts of the body. This has been attributed to the influence of the suprarenal cortex which hypertrophies in pregnancy; to some obscure effect of the ovaries, linking it with "hypertrichosis of the menopause"; and to an incretion produced by the placenta. In many cases, the hypertrichosis of pregnancy cannot be demonstrated.

## SUGGESTIONS AS TO PHYLOGENETIC SIGNIFICANCE OF HYPERTRICHOSIS

In contrast to the interpretations of hypertrichosis that have just been cited, is the view that it is simply the manifestation of the normal primitive hairiness of the race. This notion takes two forms: (*a*) all kinds of hypertrichosis are atavistic, that is, either partial or complete returns to a type of hair that was once common to all; or (*b*) hypertrichosis is a persistence of a form of hair distribution that has never been lost in the lines where it now occurs. Adrian Jefticheff, Julia Pastrana, Viola M. and Belle Carter, not to mention less conspicuous subjects, have all been cited as illustrations of "reversion." Imagination pictures the ancestral germ plasm as having run a strange gantlet. A

number of carvings left in the caves of France by the ancient Cro-Magnon race have lines on them which are thought by some to represent hair, and these illustrations of people contemporary with the woolly rhinoceros are used as an argument in favor of the idea that prehistoric man was well covered with hair. Figure 63 is from the picture which probably best represents this supposed hairy covering. The proponents of the idea that pregnancy predisposes to hypertrichosis seem to have overlooked this bit of evidence.

Since reversion as generally conceived is a little understood, if not a nonexistent, phenomenon, and since there is considerable uncertainty as to what the ancestors of the species were like, it seems futile to evade the issue by calling these unusual conditions atavistic. That the milder forms of hypertrichosis may involve a persistence of the condition from

Fig. 64.—Sketch of the most common type of facial hypertrichosis in women.

an earlier time, is an idea that is less improbable. The amount of hair in certain white races is very different from that in negroes and Indians, and there is good evidence of definite differences in the subdivisions of the white race itself. The most common form of hypertrichosis in women (Fig. 64), in contrast to some extreme forms, is, according to Trotter and Danforth, a definite hereditary dominant trait which shows a correlation of 0.8 between mothers and daughters. Other writers have expressed the same opinion, but usually without a definite statistical foundation. It is often thought to be more common in dark subjects. McEwen states that the condition is hereditary and more frequent in persons of Jewish or Celtic extraction. The frequency of hypertrichosis in Jewish women has often been noted. But Trotter was unable to find any difference between dark and light subjects when actual measurements of the hair were made. Likewise Eggels, cited by Bartels, found

an excess of pubic hair as often in light-haired women as in dark-haired ones. It may be that pigment per se has nothing to do with hair growth, but that the amount of hair is largely a matter of races, and that it happens that several lines which are prevailingly well pigmented are also rich in terminal hair. As indicated in the foregoing, this may account for the difference between the reported 27 per cent. of normal American women who have hypertrichosis and the 38 per cent. of normal French women who show the same trait.

It has been suggested, on the other hand, that the beard, instead of being in process of disappearing, is a recent acquisition of the male which is now being attained by the female. As an argument in favor of this view, Brandt, who has been a thoroughgoing exponent of the recapitulation theory of morphology, stated that had Pithecanthropus had a beard, then beards would have had to appear at the present day in late fetal life! It is still a question whether the negro has been losing terminal hair or the white man acquiring it since the time when these racial stocks became separated.

In any event, subjects with the mild type of hypertrichosis and many of those with a more pronounced form cannot properly be considered as abnormal. It has never been shown that they have any other constant physical or psychic peculiarity which differentiates them from women with less hair. In this one respect, they show a secondary sexual characteristic in less marked form than do those women who belong to other lines of descent. Whether it turns out that the amount of facial and body hair of women is increasing from an evolutionary point of view, is decreasing, or remaining stationary in each strain, the observed differences are undoubtedly to be explained on the same anthropologic grounds as are other inherited physical differences.

In short, hypertrichosis manifests itself in a number of forms which have somewhat different etiologies. Germinal modifications and endocrine "disharmonies" are among the causal factors in the more pronounced cases. Nervous origin is a possibility. Hypertrichosis due to mechanical or other irritations may exist but, if so, is little understood. The cases due to all extraneous causes combined probably represent only a small fraction of those which come to the attention of the clinician or disturb the equanimity of the subject. The great majority of these instances, whatever may be their actual cause, represents a moderate "excess" growth of hair which is probably as normal to the person who has it as are eyebrows or axillary hair. This does not mean that normal hypertrichosis may not be controlled in one way or another, but it does indicate that the problem of doing it is essentially the problem of controlling normal hair growth on any other part of the body.

(*To be continued*)

# Abstracts from Current Literature

Familial Neurosyphilis. IV. Incidence of Neurosyphilis Among the Parents of Congenitally Neurosyphilitic Children. J. E. Kemp and A. K. Poole, J. A. M. A. **84**:1395 (May 9) 1925.

Twenty families, each of which contain one or more children with congenital neurosyphilis have been subjected to study. A control group comprised twenty families with one or more children affected with congenital syphilis without demonstrable neurosyphilis. It was found that neurosyphilis was eight times as frequent among the mothers and three times as frequent among the fathers of congenitally neurosyphilitic children as among the parents of children with congenital syphilis not involving the neuraxis. No relationship between the types of neurosyphilis in the children and parents was demonstrable. In most of the parents the disease was parenchymatous. The high incidence of neurosyphilis among the parents of congenitally neurosyphilitic children is suggestive evidence of the existence of a neurotropic strain of *Spirochaeta pallida*. However, the evidence may also be interpreted as a familial constitutional tendency to nervous system disease.

Cheese Tid-Bit Urticaria. M. N. Frank, J. A. M. A. **84**:1418 (May 9) 1925.

Three cases of severe urticaria are reported due to cheese tid-bit (a National Biscuit Company preparation). Protein sensitization tests in each case were positive for cheese.

Primary Syphilis of the Anorectal Region. E. G. Martin and H. I. Kallet, J. A. M. A. **84**:1556 (May 23) 1925.

In a group of 300 proctologic cases examined during the past year, Martin and Kallet found twenty chancres diagnosed positively and five other cases of probable chancres. These findings lead them to the conclusion that chancre of the anorectal region is more common than is stated in the literature.

Three stages of the condition are described (1) ulceration, lasting from two to four weeks, followed by (2), a stage of dermatitis, characterized by the appearance of bright red papules, swelling, and reddening of the affected area, and (3) a stage of condyloma formation. Patients usually present themselves during the third stage when a mistaken diagnosis of condyloma acuminatum may be made. Anorectal chancre usually occurs as a consequence of pervert acts.

Hereditary Familial Dystrophy of the Nails. N. Tobias, J. A. M. A. **84**:1568 (May 23) 1925.

In the family studied by Tobias at least twenty-five persons in four generations showed ungual dystrophy. The dystrophy occurred in each generation, and appears to be a positive mendelian trait. The affected nails in some persons were nearly absent, while others presented fissured or furrowed nails and other types of deformity.

A Treatment for White Phosphorus Burns. D. C. Walton, J. A. M. A. **84**:1569 (May 23) 1925.

As a result of experimental investigation, Walton advises 1 per cent. copper sulphate solution in the treatment of white phosphorus burns. A large pad

of cotton saturated with this solution should be applied to the burning phosphorus and removed in two or three minutes. The copper-coated phosphorus should then be removed by forceps or by irrigation, and the case then treated like any other burn.

THE DERMATOLOGIST-SYPHILOLOGIST IN THE UNITED STATES. J. E. LANE, J. A. M. A. **84**:1616 (May 30) 1925.

Lane, in his chairman's address to the Section on Dermatology and Syphilology of the American Medical Association, recites the present status of the specialty of dermatology and syphilis in this country. A survey of the teaching of this specialty in the United States shows that the majority of colleges recognize the advantage of combined dermatologic and syphilologic teaching, although in a number of schools no definite program of teaching has been evolved.

Research in this field is hampered by lack of facilities, but in those institutions in which provision is made for research, contributions of value have been made. More and more physicians are specializing in dermatology-syphilology, and there is some danger of pseudospecialism arising, as it has done in other specialties.

Dermatology-syphilology has always had high standards, and should continue them. It is not a narrow specialty, and its training should be broad.

There is every reason to feel proud of the past and to look forward with assurance.

TRYPARSAMIDE IN THE TREATMENT OF NEUROSYPHILIS: FURTHER OBSERVATIONS. U. J. WILE and L. M. WIEDER, J. A. M. A. **84**:1710 (June 6) 1925.

The authors report the results obtained in the treatment of eighty-five patients who have been observed for about one and a half years. There were thirty-two cases of paresis, twelve of taboparesis, seven of tabes dorsalis, one of acute syphilitic basilar meningitis and thirty-three of diffuse cerebrospinal syphilis.

The effect on the cell count and fluids of the spinal fluid was more marked than on the Wassermann reaction and colloidal gold curve. Twenty-four patients of the entire group were considered clinically improved. Such improvement occurred in seven cases of paresis, two of taboparesis, two of tabes, twelve of the diffuse cerebrospinal type and one of acute basilar meningitis.

When improvement occurred it was practically always noted during the first or second courses of treatment. There were no serious untoward effects from tryparsamide.

THE MECHANISM OF THE FORMATION OF SARCOMA. ALEXIS CARREL, J. A. M. A. **84**:1795 (June 13) 1925.

In a previous article, Carrel described the process by which blood macrophages inoculated in vitro with filtered extract of Rous sarcoma were transformed into malignant cells. The present study carried the work further and included other sarcomatous growths.

In some coal tar sarcomas of fowls the cultures did not differ markedly in appearance from those of Rous sarcoma. Graft experiments gave rise to rapidly growing tumors, and, more important, inoculation of the supernatant fluid of the medium determined in chickens the development of malignant tumors. This phenomenon was further studied. A filtered extract from an

osteochondrosarcoma of little activity produced a culture with malignant characteristics, but inoculation of the cultures into chickens failed to give rise to tumors.

These experiments were repeated with McFaul tar sarcoma, a highly malignant tumor. Not only did the filtered extract give rise to cultures (spleen) with malignant characteristics, but inoculation of the filtered extract produced highly malignant sarcoma in chickens.

These experiments permit the following deductions: that the Rous principle and that of sarcoma cells in general is not an ultramicroscopic organism but a product of the cells themselves. Tar sarcoma appears to be a self-perpetuating disturbance of the metabolism created by the action on embryonic cells of a substance related directly or indirectly to coal tar. The substance produced has the power of determining a special disease and eventually the death of certain cells, at the same time reproducing itself. There is a distinct analogy, if not closer relation, between this and the Twort-D'Herelle phenomenon.

A similar process may bring about the formation of other tumors. Toxic substances normally in the blood might act on the dividing cells of an irritated area as does the serum of chickens injected with tar on embryonic pulp.

DIPHTHERIA OF THE SKIN: REPORT OF CASE. S. WARREN and L. SUTTON, JR., J. A. M. A. **84**:1983 (June 27) 1925.

The case reported occurred in a 5 year old child, who had varicella and a coincident nasal diphtheria. The varicella lesions took on an impetigenous character and enlarged until a considerable cutaneous area was involved. Death resulted from toxemia, and the necropsy findings were consistent with infection with B. diphtheria. Diphtheria bacilli were recovered from one of the skin lesions. The virulence of the organism was proved by guinea-pig inoculation.

The authors record the case as an instance of true diphtheria of the skin with fatal termination. The varicella lesions were apparently infected with diphtheria bacilli from the nasal discharge.

THE FUNGICIDAL ACTIVITY OF CERTAIN VOLATILE OILS AND STEAROPTENS. THEIR COMPARATIVE TOXICITY ON A PATHOGENIC YEASTLIKE ORGANISM: REPORT OF CLINICAL UTILIZATION IN RELATED INFECTIONS. H. B. MYERS and C. H. THIENES, J. A. M. A. **84**:1985 (June 23) 1925.

The authors report the results of a study of various volatile oils on fungus infections. Investigation of the fungicidal properties of these oils on a yeastlike organism causing a so-called fruit poisoning showed that thymol, cinnamon and clove were the most effective. They had found previously that an alcoholic solution of oil of cinnamon caused rapid improvement in cases of fruit poisoning, a cutaneous moniliosis studied by Kingery and Thienes (ARCH. DERMAT. & SYPH. **11**:186 [Feb.] 1925). A mixed spirit compound of 5 per cent. thymol and 2 per cent. cinnamon was found effective in several cases of epidermophyton infection of the hands and feet that had been resistant to the commonly employed remedies. One patient with pulmonary mycosis was successfully treated with the thymol-cinnamon mixture. A patient with actinomycosis, resistant to iodids and roentgenotherapy, was apparently cured by the internal administration of thymol. Further clinical trial with these agents is warranted.

Ivy Poisoning: Preventive Treatment, with Especial Reference to the Element of Individual Susceptibility. G. L. Krause and F. D. Weidman, J. A. M. A. **84**:1996 (June 27) 1925.

Recognizing that clinical judgment in the common run of poison ivy cases is especially handicapped because of the variables that are present, the authors undertook a well controlled series of experiments to determine the question of immunity to poison ivy and the value of the Strickler-Schamberg methods of desensitization.

They found it impossible to produce the condition in the more common laboratory animals. Twenty human volunteers were observed for a period of more than eighteen months, and their degree of susceptibility determined by cutaneous application of poison ivy plant and extract. A valid natural immunity was determined in four of the volunteers.

In the nonimmune, a varying degree of susceptibility was found. Repeated attacks tended to shorten all stages of subsequent attacks. The discharge from the lesion did not disseminate the disease. In about half of the susceptibles, it was necessary that some trauma of the skin be inflicted before a dermatitis would develop.

Seven of the volunteers were given the preventive treatment of Strickler, but subsequent application of the virus showed that they had not been protected by this treatment.

The authors therefore conclude that Strickler's preventive treatment is a failure. It is possible that the curative value of this system is scant or nil, and the beneficial results which have been reported are ascribed to the varying intensity of the irritant and the variable susceptibility of different persons.

Cosmetics. H. E. Miller and L. R. Taussig, J. A. M. A. **84**:1999 (June 27) 1925.

Cosmetic preparations may be the cause of eczemas, especially in women. The dyes contained in these preparations are all more or less likely to produce a dermatitis, paraphenylendiamin being the most harmful. The authors have recently seen two severe disfigurements from the use of phenol as a wrinkle remover. They have also encountered a dermatitis of the side of the neck produced by liquid nail polish, the nails coming in contact with the skin of the neck when the patient slept.

Legislation should be enacted prohibiting the use of anilin dyes in the manufacture of cosmetics.

Michael, Houston, Texas.

Carate in Tropical America. A. Peña Chavarria and Paul G. Shipley, Rev. Med. Surg. Lat. Am. **10**:648 (March) 1925.

This is an excellent review of the condition known as carate or pinta disease, as it exists in Colombia, S. A. The authors advance the theory that the disease is transmitted by a Simulium. The number of carate patients in Colombia is about 400,000.

Endochrino-Sympathetic Disturbances in Some Cutaneous Diseases. G. Bertaccini, Gior. ital. dermat. & Syph. **66**:3 (Feb.) 1925.

Investigations were carried out in thirty-six cases, of which eighteen were of alopecia areata, six of vitiligo, two of scleroderma, two of Recklinghausen's disease, three of ichthyosis, one of dystrophia unguium, one of Raynaud's dis-

ease, one of gravidic erythema, one of pemphigus foliaceus and one of psoriasis. Endocrine disturbance was present in one case of scleroderma and in one case of vitiligo. All other cases were negative.

DERMATITIS PAPILLOMATOSA CAPILLITI. A. PASINI, Gior. ital. dermat. & syph. **66**:57 (Feb.) 1925.

This is a report of four cases of a papillomatous condition of the scalp in children, situated on the vertex and covered with purulent discharge and crusts. The condition is probably due to infection with pus-forming germs. It is different from acne keloid.

CLINICAL AND EXPERIMENTAL STUDIES ON THE BISMUTH-PROTEIN PREPARATIONS IN THE TREATMENT OF SYPHILIS. A. N. MARTIN and J. BEJARANO, Prog. Clin. **31**:433 (April) 1925.

The authors have used a preparation of potassium and sodium tartrobismuthate with milk protein, containing 1.6 mg. per cubic centimeter. They conclude that the bismuth-protein combination may be used with advantage in Wassermann-fast cases, in conjunction with the arsenicals or without them. They claim that it never produces stomatitis or nephritis.

PARDO-CASTELLO, Havana.

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## DERMATOLOGIC ABSTRACTS

### THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

EVIDENCE SHOWING EXISTENCE OF TWO DISTINCT TYPES OF PIGMENT CELLS CAPABLE OF GIVING RISE TO MELANOTIC TUMORS. D. T. SMITH, Bull. Johns Hopkins Hosp. **36**:185 (March) 1925.

Smith has found two types of cells in the body capable of producing melanin pigment. In tissue cultures the one grows like epithelium, the other like connective tissue. Normally, the epithelial type of pigment cell can be found in the basal layer of the epithelial coat of the skin, hair follicles, retina and certain regions of the brain. The connective tissue type of pigmented cell is found in the choroid of the eye, iris, ciliary body and in the "mongolian spot," when that is present. Observations on pigment cells in the human embryo show that the two types arise independently and in different stages of embryonic development. Among 250 benign moles of the skin, 96 per cent. were of the epithelial and 4 per cent. of the connective tissue type. Among 100 malignant pigmented moles of the skin, 67 per cent. were of the epithelial and 33 per cent. of the connective tissue type. Among thirty tumors of the eye, 20 per cent. were of the epithelial and 80 per cent. of the connective tissue type. Tumors arising in other parts of the body were either epithelial or connective tissue, depending on the type of pigment cell from which they originated.

RECOVERY OF SPIROCHAETA PALLIDA FROM SPINAL FLUID OF PATIENT WITH SYPHILITIC MENINGITIS OF NEURORECURRENCE TYPE. J. E. KEMP and A. M. CHESNEY, Bull. Johns Hopkins Hosp. **36**:203 (March) 1925.

Kemp and Chesney relate the case of a man who had the primary sore six months before admission and was treated with two doses of arsphenamin.

Three months later acute syphilitic meningitis of the neurorecurrence type developed with paralysis of the left second, seventh and eighth cranial nerves. The spinal fluid was positive. There was no history of secondary manifestations at any time. There was no nausea or vomiting. No symptoms referable to disturbance of the other cranial nerves were noticed by the patient. The spinal fluid examination showed 1,730 cells, 80 per cent. of which were lymphocytes, and a four plus globulin. The Wassermann reaction was completely positive with 0.6 c.c. of fluid in the water bath. At the time of the first puncture, 3 c.c. of the patient's spinal fluid was inoculated into the right testis of a rabbit. Thirty-three days later a small nodule was palpable. Aspiration was not attempted at this time for fear of influencing the course of the lesion. Sixty-eight days after inoculation, the nodule was about 2 mm. in diameter, but aspiration and study by dark field failed to reveal any spirochetes. During the next fourteen days, the nodule increased rapidly in size until it occupied practically the whole of the upper pole of the right testis. Aspiration and study of the material of the nodule at this time, eighty-two days after inoculation, revealed many characteristic, actively motile spirochetes.

MALIGNANT PIGMENTED MOLE IN INFANT. H. E. COE, Northwest Med. **24**:181 (April) 1925.

Coe relates the case of a child who at birth had two small wartlike growths slightly larger than the head of a black pin in the hair of the left frontal region. They grew rapidly, however, and coalesced so that at the age of 2 months there was a single mass, and the scalp was so tightly stretched over it that blebs appeared from time to time. About a week later, a swelling appeared on the left side of the neck just below the ear which increased in size rapidly and became tender. The mass on the head had at times become dark in places as if from old blood. The babe, however, had been gaining weight and apparently had not been in any discomfort until recently. A diagnosis of carcinoma was made and immediate removal advised. The mass on the head was removed, also an enlarged cervical gland. The microscopic diagnosis was pigmented mole. Four weeks later the tumor recurred. The baby died soon afterward.

SUDDEN DEATH IN ECZEMA IN INFANTS. HUDELO and LOUET, Paris méd. **55**:261 (March 21) 1925.

Hudelo and Louet think that the family should be warned of the possibility of sudden death of a young infant with eczema or impetigo. Treatment should be extremely cautious, and — in the hospital — strict isolation should be imposed. They have witnessed such fatalities in infants that had not been treated at all. The clinical picture resembles that of a parenteral protein shock.

# Society Transactions

## CHICAGO DERMATOLOGICAL SOCIETY

*Annual Meeting, Jan. 21, 1925*

JAMES HERBERT MITCHELL, M.D., *Presiding*

CHRONIC GRANULOMA. Presented by DRS. PUSEY and SENEAR.

A woman, aged 40, presented at the October meeting of the Society (report published with proceedings of October meeting in the March, 1925, number of the Archives of Dermatology and Syphilology), since that time had received roentgenotherapy on three of the nodules, with resultant flattening of the lesions. Biopsy showed a chronic granuloma.

DISCUSSION

DR. ZWICK: Has a topical tuberculin test (local inunction with 50 per cent. tuberculin — hydrous wool fat ointment) of the lesion been made?

DR. LIEBERTHAL: I demonstrated this case before the Society at the October meeting as one of scleroderma, and presented specimens from one of the lesions which showed an increase of connective tissue, some of it hyalinized, with here and there a few collections of round cells.

URTICARIA (DUE TO SUNLIGHT). Presented by DR. OLIVER.

A woman, aged 50, had a disorder of eight years' duration, which consisted of papular and urticarial eruption on any part of the skin that was exposed to the sun's rays. Nothing but the sunlight excited the eruption, and it disappeared within one half to three quarters of an hour when she remained in the shade.

DISCUSSION

DR. SUTTON: I have seen several cases of the same type. I believe that Dr. Duke of Kansas City, an internist, has done more accurate and scientific work on urticaria than any dermatologist has ever done. Dr. Duke has demonstrated that such cases might be due to sunlight as well as to many other things. I heard of one woman who develops urticaria when she puts a hot water bag on her toe, and a man who if he presses a piece of ice against his cheek or chest develops urticarial lesions within a short time. I believe that many cases due to physical causes are overlooked. I am reminded of the woman who was thoroughly examined and went through every test in the laboratory and was sent back home with the diagnosis "sensitized to house dust," so there was nothing left for her to do but to jump in the creek.

DR. FOERSTER: I studied two such cases with special reference to the presence of hematoporphyrin, but was unable to find this substance in the blood and urine, even on spectroscopic examination.

DR. GOECKERMAN: We have under observation a young woman who has shown extreme hypersensitiveness to sunlight, in that she developed a severe dermatitis when exposed. Her basal metabolism rate is lowered to between —15 and —20. She was given desiccated thyroid for a year. The sensitiveness has disappeared, with improvement in the metabolic rate, and she can now expose herself freely to light without showing any hypersensitiveness.

Whether the lowered metabolism was responsible for the production of photosensitizing substances, I do not know. She was given the thyroid medication throughout an entire year in an endeavor to keep the metabolism rate up to normal. Satisfactory improvement began to be apparent after she had taken the thyroid for about six months.

DR. OLIVER: I first saw the patient one week previously, and I requested her to return on a sunny day so that I might see the eruption. She returned only on the day of presentation, and I have not had any opportunity to do any work on the case. She had complained of the trouble for seven years, but it had never appeared except on the areas exposed to sunlight.

ROENTGEN-RAY ALOPECIA. Presented by DR. WAUGH.

A boy, aged 10, had received four doses of roentgenotherapy four years previously, in Russia, for alopecia of some kind. At the time of presentation the alopecia was almost complete, with marked atrophy and telangiectasia in the part exposed to treatment. This area extended from temple to temple over the suboccipital region, and was about 3 inches (7.6 cm.) wide.

DISCUSSION

DR. GRINDON: The borders of the patches look like a favus alopecia.

DR. ZWICK: I believe it is a case of alopecia areata, its peculiar localization resembling somewhat Sabouraud's "pelade en couronne." In a permanent epilation following roentgenization marked atrophy of the skin would be expected.

DR. BUTLER: There is definite dermatitis, with atrophy of the skin and new vessel formation. I believe the diagnosis of roentgen-ray alopecia is correct.

DR. WAUGH: I presented the patient to emphasize the need of care in giving scalp treatments. I do not know whether the treatment was given because of alopecia or because of a trichophyton infection of the scalp. The patient's mother said that only one treatment was given.

RAYNAUD'S SYNDROME. (SCLERODACTYLIA, CALCINOSIS AND BONE CHANGES.) Presented by DRS. ORMSBY and EBERT.

A woman, aged 55, whose disorder was of seven years' duration, first noticed that the ends of the fingers became cyanosed and painful at intervals, especially during cold weather, and a short time later the skin of the phalanges became hard. The condition became progressively more marked, the fingers at times appearing white and "dead." From time to time firm nodules developed on the finger-tips, became sore, and finally discharged pus and calcareous masses. There had been no trouble with the feet.

When she was first seen, in May, 1923, the asphyxia and sclerodermatous changes were much more marked than at this time. Because of pupillary anomalies, a spinal puncture was made, with negative findings. The blood Wassermann reaction had been negative on several occasions. She had received repeated courses of six weekly injections of arsphenamin, with intervals of three months during which she took potassium iodid internally, and her condition had markedly improved.

On Jan. 17, 1925, Dr. Phemister had performed a peri-arterial sympathectomy on the right brachial artery, and had also removed two concretions from the right thumb and index finger. This material was lime salts, not bone.

The blood chemistry was normal and the basal metabolism —12, with poor cooperation on the part of the patient.

(Weil and Weissman-Netter: Concretions calcaires souscutanes et insuffisance thyro-ovarienne, Annales **5**:724, 1924. Hoffman: Arch. **147**:89, 1923.)

DISCUSSION

DR. GUY: I have seen a case as severe as this one clear up after long continued use of thyroid extract and posterior lobe of the pituitary.

DR. O'LEARY: A report on a study of the capillaries in cases of scleroderma and Raynaud's disease is about to be published in collaboration with Dr. George Brown. By the use of dermatoscopy we noted that the capillaries in scleroderma were of the large or giant feathery type, were greatly reduced in number, and the venous loop was slightly dilated. The rate of flow in the capillaries showed little obstruction. In the Raynaud syndrome group the capillary pattern was preserved, and the capillaries showed evidence of stasis and permeability disturbances with decreased tonus, cyanosis and rubor, depending on the time of examination.

DR. EBERT: The patient was presented because roentgen-ray examination showed the terminal phalanges of the fingers broken down. A periarterial sympathectomy has been done with the idea of the condition being of vasomotor origin.

LUPUS ERYTHEMATOSUS (GENERALIZED). Presented by DR. SCHMIDT.

A woman, aged 28, first seen on Jan. 20, 1925, at that time presented scars on the upper arms, upper right leg, the left aspect of the nose and the area over the left malar bone. The patch on the right upper arm, on the lateral aspect, appeared a year ago as a small red spot, which gradually increased in size, but did not cause any pain or discomfort. The lesion on the leg appeared eight months ago, those on the face six months ago, both increasing slowly in size.

The blood Wassermann reaction was 4+, although the patient persistently denied any knowledge of a specific infection. On December 17, an intravenous injection of 0.6 gm. arsphenamin was given. No signs of intolerance appeared, and four more injections were administered. On January 14, she received an intramuscular injection of mercury. After the third injection, itching erythematous, scaly macules were observed, irregularly scattered over the arms, axillae and upper part of the trunk. The lesions varied in shape from round to oval, with the long axes tending to follow the lines of cleavage. The macules were superficial, and there was no infiltration. In many there was a borderline of fine scales at the periphery of the lesions. The superficial erythematous lesion on the face had advanced over the bridge of the nose, down over the right cheek. The major portion of this lesion was violaceous, but the border was slightly elevated and rose red. There was distinct central atrophy in a portion on the right cheek, and the pilosebaceous orifices were widened in the portion over the nose.

There was no history of tuberculosis in the family. The patient had been married for three years and had had a miscarriage two and a half years ago, at three months. There had been no subsequent pregnancies. The husband apparently was well. The urinalysis showed no albumin, casts or sugar. Physical examination was negative. Hemoglobin content was 85 per cent.; blood pressure, 131 systolic and 81 diastolic; leukocytes, 8,600.

The erythematous lesions on the face had been slightly aggravated, and there was a fresh exanthem on the body since antisyphilitic therapy had been instituted.

DISCUSSION

DR. WILE: I venture the diagnosis of disseminated erythematous lupus. My attention was first called to cases of this kind by Dr. Pollitzer of New York, who, I believe, has seen more of them in this country than any one else. Many years ago such a case was shown there, and Dr. Pollitzer convinced the Academy of Medicine of New York of the propriety of speaking of the syndrome not as acute lupus erythematosus but as the disseminated type of erythematous lupus, with lesions occurring on the trunk, the same as those ordinarily seen on the face. I have two patients under observation in the hospital with typical lupus erythematosus of the face and disseminated lesions on the extremities. I think that if one did not see the lesions on the face, one might hesitate to make a diagnosis in this case. The patient evidently has syphilis, but I believe that this has nothing to do with the eruption.

DR. PUSEY: I agree with Dr. Wile. I have seen a good many cases of erythematous lupus in which there were lesions on the body which approximated the lesions of erythema multiforme. I agree that this is the diagnosis in the case under discussion, and not syphilis.

DR. SCHMIDT: I saw the patient only the day before. I was unaware of the lesion on the mucous membrane, and I do not know whether or not this antedated the antisyphilitic treatment.

DR. ORMSBY: This patient's disease resembles that of another patient I and Dr. Mitchell presented at this meeting, and it represents a type of disorder not well understood. The patients present a combination of symptoms suggesting lupus erythematosus, dermatitis seborrheica and pemphigus. With Dr. Mitchell, I presented a case before this society, which was recorded in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, 1921, volume 4, page 284, and several months ago a similar one was seen in private practice in which Dr. Finnerud found histologic evidence of pemphigus foliaceus. Altogether, we have seen five of these cases, and Dr. Senear has observed some more. I suggest that Dr. Senear work up the group and determine its proper designation. Some of the patients did not develop bullae for some time after the lupus-erythematosus-like and dermatitis-seborrheica-like lesions appeared, and in the present case that raised the question of its possible relationship to the group mentioned. I believe that the continued observation of this patient or a histologic study can settle the question of disseminated lupus erythematosus or the unplaced disorder discussed here.

DR. BUTLER: I believe that the lesion on the nose is definitely that of lupus erythematosus which has gone just beyond the congestive stage where the follicles are found enlarged. If the disorder were seborrheic dermatitis, there would not be this enlargement of the follicles. I believed the case is undoubtedly one of lupus erythematosus.

DR. GRINDON: The picture on the face is definitely that of lupus erythematosus, and the lesions on the body are like those I have observed in other cases. What Dr. Senear and Dr. Ormsby have said is interesting, but, basing my opinion on what I see in this case, I believe the condition is lupus erythematosus disseminatus.

DR. PUSEY: I see nothing inconsistent in the entire description. One can begin at one end of the history of such a case with chronic lupus erythematosus,

then have erythema multiforme with bullous lesions, then dermatitis herpetiformis, pemphigus and pemphigus foliaceus. I have seen lupus erythematosus of several years' duration, with long-standing hyperemic lesions on the nose. I could not say that any of them ever showed bullae, but I think they might show bullae, just as a Raynaud's disease may show bullae. The patient Dr. Senear referred to had an acute toxic type of eruption over the body and now showed pemphigus lesions. I believe the cases constitute one group running all the way through from a chronic toxic process like lupus erythematosus up to the bullous lesions.

DR. COLE: I think the case described by Moses Scholtz about two years ago was almost a counterpart of this one.

DR. STILLIANS: Several years ago, in a meeting of this Society, I showed a patient with lupus erythematosus on the face and vesicular lesions on the fingers.

DR. ORMSBY: I have seen two patients with lupus erythematosus discoides which lasted for some time, who then developed generalized lupus erythematosus and died with bullous erythema multiforme.

DR. SWEITZER: One should keep in mind the diversity of the cases of lupus erythematosus. One frequently is unable to separate the cases of typical lupus erythematosus and the toxic erythemas. Dr. Michelson had a case which demonstrated this very well. It was thought to be an acute lupus erythematosus. The eruption cleared up, but the patient finally came into the general hospital with septic endocarditis. The blood cultures showed *Streptococcus viridans*, and the patient died. It was then decided that the case belonged to the toxic erythema group, but many of these cases resemble one type of disorder at one time and later resemble another.

DR. GOECKERMAN: I recall a patient who was seen three years ago, who died with lupus erythematosus. The disorder disseminated while the patient was under observation, and in association with this, there were typical bullous lesions in the mouth. Recently we had another case of what we thought was the acute disseminated type of lupus erythematosus, in which at necropsy we could not find any toxic or tuberculous focus. The only pathologic condition found at necropsy with the exception of the skin lesions were polycystic kidneys. All the blood cultures were negative.

DR. SENEAR: This group had nothing in common with the type ordinarily conceived of as lupus erythematosus. These cases are essentially chronic, and do not run the course of the acute disseminated lupus erythematosus, which not infrequently shows bullous lesions.

DR. FINNERUD: I was impressed particularly with the appearance of the lesion on the hard palate, and I have examined this as carefully as possible in a poor light. The lesions of the mucous membrane of both the diffuse and discoid types are usually definite, and even without the association of cutaneous lesions it is frequently possible to make a diagnosis. The picture was a little hard to make out, but the lesion was a sharply circumscribed patch about the size of a silver half dollar, the center of which was stippled with epithelial thickenings. In lupus erythematosus of the mucous membrane the margin in the beginning is red and elevated, and coursing outward from the margin are delicate blood vessels. The border slopes gradually into the surrounding mucous membrane, and abruptly toward the center. In the center are occasional erosions, fissures and ulcerations. In the older lesions the margin is narrower and less elevated, and the blood vessels are not seen, but

are replaced by the epithelial thickenings. With the exception of the lesions on the nose and face, the mucous membrane lesion, in my opinion, makes the diagnosis certain.

ATROPHIA PILORUM. Presented by DRS. ORMSBY and MITCHELL.

A child, aged 2, who was presented before the December meeting of the Society, was born with thick, curly hair, which was lost at the age of 4 weeks, following infection in the scalp and on the eyelids. Examination showed marked thinning of the hair. Many of those remaining were of the lanugo type, the longest about 1 cm. There was no particular change in the hair itself. Some trichorrexis nodosum was present. The entire scalp was covered with pale red, follicular papules and somewhat similar lesions were present on the arms. The hair in the eyebrows was absent, but the lashes were unusually long, and curled upward and backward.

ATROPHIA PILORUM. Presented by DRS. ORMSBY and MITCHELL.

The patient was a child who was presented at the April, 1924, meeting of the Society, and the case is recorded in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, 1924, volume 10, page 393.

DISCUSSION OF CASES OF ATROPHIA PILORUM

DR. PUSEY: I am interested in the first case particularly because of the general lack of hair and the long eyelashes.

DR. ORMSBY: I believe the picture is unusual, and I hope Dr. Sutton will discuss it. The history states that the child was born with a normal amount of hair, but at 1 month of age he developed what appeared to be a pustular folliculitis, which affected other parts as well as the scalp. Later the hair gradually disappeared from the scalp and the eyebrows. The scalp was still covered with some follicular pustules, showing that some inflammatory process was still going on. I am not familiar with this picture as belonging to any type of alopecia.

DR. SUTTON: I have not had an opportunity to read the history of the second case, but clinically, it looks like an example of trichotillomania. I wish to call attention to the general group of neurotic excoriations of the skin, in which the patients often injure themselves with no intent to deceive. If these patients could be persuaded to keep their hands off themselves, they would be all right. I recently observed a typical case. A friend in London reported a series of these cases of trichotillomania as instances of epidemic alopecia areata, and it was not until his attention was called to the previously reported cases that he recognized his mistake.

DR. PUSEY: This case suggests the cases of baldness in patches. My acquaintance with this disorder goes back to the time when I was 12, when my grandmother had a patch of alopecia on the side of the head which was due to pulling the hairs out, innocently, as she read the paper.

DR. ORMSBY: I am sorry that Dr. Sutton could not have seen the patient earlier, and I am sure that if he had, he would not have thought of the diagnosis of trichotillomania. This condition is entirely different. The child had no hair until she was 14 months old, and she is only about 2½ now. When first seen the hair was less than half an inch (1.2 cm.) long. Each hair was atrophic and on microscopic examination it appeared beaded. The condition was thought to be a monilethrix, but there were no hypertrophied

follicles. Dr. Ebert and others decided on closer examination that the hairs were twisted and not beaded, and apparently every hair in the child's head was either beaded or twisted. The hairs had grown well over the entire scalp except in the two areas now remaining, and the condition of the hairs had remained the same as when the child was first seen. He considered it a remarkable change in every hair of the child's head. He and Dr. Mitchell saw a case of trichotillomania the day before, and there was no difficulty about the diagnosis in that case. That disorder is purely a mental disorder, while the one under discussion is a true organic disease, although I am not prepared to say it is monilethrix.

DR. SUTTON: Dr. Ormsby is certainly right and I am wrong.

A CASE FOR DIAGNOSIS. Presented by DR. WAUGH.

A woman, aged 48, had a disorder which began about ten years before presentation as a faintly reddish, macular eruption on the face, upper part of the thorax, neck and arms. Most of the lesions were the size of a split pea, some slightly larger, and for about two years were rather indistinct. They had gradually become more purplish red, and the color was always more pronounced at the menstrual period. Some brownish pigmentation was present.

The lesions were numerous, mostly macular, and a few infiltrated, with distinct telangiectatic vessels, especially in the lesions on the face. There had been no subjective sensation at any time, and the patient did not think any of the lesions had disappeared. There was nothing of importance in the history, and the blood Wassermann reaction was negative.

(Biopsy specimen was shown under the microscope.)

DISCUSSION

DR. PUSEY: I think it is a case of urticaria pigmentosa.

DR. ZWICK: Some of the lesions tested by me responded distinctly to vigorous irritation, as urticaria pigmentosa is expected to do. The histologic findings agree with the diagnosis of Nettleship's disease.

DR. FOERSTER: I am reminded of the case of a young woman with urticaria pigmentosa of about fifteen years' duration, a student at the University of Wisconsin. An exactly similar clinical picture was present; microscopic examination confirmed the clinical diagnosis. In that case the disorder had developed immediately after an operation for appendicitis, and had the same limited distribution which was shown in this case. Ten years after the onset, the patient developed frequently recurring mild headaches that gradually increased in intensity, then had several very mild apoplectiform seizures and finally died in coma. It was not possible to secure a necropsy. I believe that there might have been some relation between the cerebral and the cutaneous disorders.

DR. WILE: I do not think the patient was shown thoroughly, because she objected to disrobing. It is evident that she had some lesions over the shoulder and trunk, as the lesions could be seen as far as the arms were exposed. To me the case bears a striking resemblance to a guttate parapsoriasis, and I think several of the other members had this impression of it. Unless one can be sure that the lesions have some other characteristics of urticaria pigmentosa than the ones I saw, I think the other possibility should be kept in mind.

DR. EBERT: I prepared the specimens of the case. At first glance they appeared to show only the ordinary round cell infiltration, but the sections from the center of the lesions, under careful study, appeared to show dilated spaces like dilated veins. I think this corresponds with the clinical appearance of the lesions, and that if one makes a careful examination one can see the small dilated veins. I did not find mast cells, and there was no increase of pigment or broken-down blood cells.

DR. WAUGH: I have had the case under observation for several months, but I have not been convinced that the disorder is urticaria pigmentosa. The patient was positive that no itching had ever been present, and no lesions had ever disappeared spontaneously. I irritated the lesions several times, but I could not develop the papular type of lesion which several of the members had developed by pricking the lesions with a sharp pin. The older lesions on the face are distinctly telangiectatic. The capillaries can be seen without a lens. The disorder is so much more vascular than any case of urticaria pigmentosa which I have seen that I doubt this diagnosis. The histologic picture does not coincide with that usually seen in that disease.

A CASE FOR DIAGNOSIS (SECOND PRESENTATION). Presented by DR. OLIVER.

A child, aged 5, presented an eruption which had been present for four years. The disorder began on the scalp with diffuse crusting; six months later, the hands, feet, chin and anal region were involved. He was uncomfortable and was constantly crying and whining. He was the second child; both other children were living and well.

The blood and spinal fluid Wassermann reactions were negative, as was the Pirquet test. Blood examination showed 5,460,000 red cells; 26,550 white cells; hemoglobin, 64 per cent. Differential count: lymphocytes, 40; transitionals, 3; polymorphonuclears, 53; eosinophils, 2; large mononuclears, 2. Blood chemistry revealed: protein nitrogen, 25 mg.; urea nitrogen, 13; uric acid, 2.8 mg.; creatinin, 1.3 mg.; sugar, 1.07 mg. per one hundred cubic centimeters of blood. There was a slight fever. The reflexes were normal; heat and pain sense was present. Cultures from the skin lesions had been persistently negative for fungi.

DISCUSSION

DR. SUTTON: I thought of the diagnosis of acrodynia or possibly thrush infection. Through the kindness of Dr. Neff of Kansas City, I saw three cases of acrodynia, but I have yet to see a case which looks like this one clinically. The main thing that impressed me was the amount of soreness which was present. I believe the diagnosis of thrush has been eliminated by the absence of fungi, and I believe the case may be one of keratoderma blennorrhagica.

DR. BUTLER: The only symptom I could see of the so-called acrodynia was the extreme restlessness of the child. In acrodynia the condition of the hands and feet is really pathognomonic of the disease, but this child does not present the usual symptoms. The hyperkeratosis is limited to the palms, while in acrodynia there is always a hyperkeratosis on the dorsal as well as on the ventral surfaces of the hands and feet. The other symptoms of acrodynia also are absent in this case. Another important point is that in acrodynia one finds the livid "raw beef" hands and feet, a condition which is not present in this case. All the patients with acrodynia have recovered or died within a year, and this disorder is of four years' duration. In my opinion, the case corresponds to a keratoderma blennorrhagica, and as this is always

a complication of gonorrhea, I believe that the rectum should be carefully examined for the gonococcus. Some of the lesions, especially those about the mouth, are not unlike those of cutaneous thrush, but I agree with Dr. Sutton that the condition suggests keratoderma blennorrhagica.

Dr. Harry Foerster: I believe that while the evidence appears to be against a diagnosis of acrodynia, or erythredema, there are a few points that might be advanced in its favor, such as the peculiar mental attitude of the child and some features of the symptomatology. Erythredema is primarily a polyneuritis of infectious or toxic origin, and the skin manifestations are secondary; they are symptomatic of the disease and not causative. There is distinct erythredema of the palms and soles, and because of its long duration, I believe that the hyperkeratosis has been much exaggerated. There are trophic changes in the hands and feet, and the absence of other signs of trophic disturbance, such as loss of teeth and hair, I believe might be accounted for in this case by a localization of the trophoneurosis to the extremities.

Dr. Zeisler: The clinical picture in this case does not correspond with that of keratoderma blennorrhagica as reported by Dr. Stillians and myself, and as I have seen it in one case since. The typical waxy conical keratoses are not present, but there is more of a diffuse hyperkeratosis.

Dr. Zwick: A diagnosis of Hallopeau's "acrodermatite suppurative continue" or possibly the same author's "dermatite pustuleuse chronique en foyer á progression excentrique" should be considered. In those two diseases, as in the present case, there is chronic persistence with alternating paroxysms of exacerbation and partial remissions. Development of foci distant from the original sites (dissemination from extremities to mouth) has been noted, and suppurative and bullous types of the first mentioned disease have been described. If this case (which he saw before) belonged to this group, one might look on it as a mixed type, as both vegetating suppuration and formation of bullae could be observed. Bacteriologic investigation might aid in arriving at a diagnosis, as fresh lesions of Hallopeau's acrodermatite are generally sterile. I believe that the case should be reported in full.

Dr. Guy: I believe that the clinical picture ordinarily accepted as acrodynia will be so modified in the future as to include cases beyond the present age limit and restricted skin lesions. I have a girl, aged 19, under observation, who had an attack which presented an intestinal disorder with diarrhea, a mental disorder with extreme irritability, crying and whining constantly, with photophobia, nystagmus, an intention tremor and the organic signs of an insular sclerosis. After two or three weeks in bed with a low grade temperature, with no treatment other than dietetic measures, the patient has entirely recovered. The eruption was that of a subacute dermatitis involving the dorsal surfaces of the hands, with scattered patches including the flexors. The skin is not yet entirely well, but the patient is mentally clear, and her reflexes are normal. I think that what we now recognize as acrodynia will ultimately be included in a much larger group, the similarity of whose symptoms to pellagra would suggest the possibility of sporadic infection or "deficiency disease" as its cause.

Dr. Oliver: The disorder has been present for four and a half years, beginning as a pus infection on the scalp. Two months later, it spread to the palms and soles, and subsequently to the mouth and anal regions. Repeated cultures from the pus from the eyes has been made, but no gonococci have been found. One eye has not been affected. We have not examined the pus from the anal region, but we have done almost everything else. When

the patient was first presented at the November meeting of the Society, the diagnosis of acrodynia was suggested and was concurred in by several of those present. The child was returned to the Children's Memorial Hospital, but the pediatricians did not agree with this diagnosis. Dr. Bilderback, who has seen as many cases of acrodynia as any one, did not believe this was a case of that disease. The patient is the second child in a family of three, and the other children are normal. The father and mother are normal so far as I know, but no examination has been made for gonorrhea. Wassermann tests on the father and mother were negative.

VASCULAR NEVUS. Presented by DR. STILLIANS.

An unmarried woman, aged 49, gave a history of attacks of swelling of the tongue and lesions in the mouth since infancy. At intervals, varying from a few weeks to several months, the tongue would suddenly swell, accompanied by sharp pains, bleeding, desquamation and lesions of the sides, floor and roof of the mouth. The attacks usually lasted about a week, but at the age of 27, she had an attack which persisted for four months, accompanied by rise in temperature, which was occasionally as high as 105 F. At that time an incision was made on the left side of the neck, but little pus was found. When presented the tongue was swollen, but slightly movable, and covered with small vesicles, many of which were hemorrhagic. Similar but larger lesions could be seen inside the left cheek, some of the vesicles being 0.3 cm. in diameter, clear and tense.

ERYTHEMA MULTIFORME IN SIX MONTHS' FETUS. Presented by DR. MICHELSON.

The eruption occurred in a six months old fetus, which was born alive and lived but a few hours. Ten days before the premature birth, the mother had a chill and high fever lasting several days. She had no eruption, and no drugs were given. After the acute illness, uterine bleeding began, and persisted until the expulsion of the fetus. No history of syphilis was obtainable, and the mother's blood Wassermann reaction was negative. The placenta was studded with minute white specks, which looked like miliary tubercles, but which on section proved to be collections of leukocytes.

The eruption on the fetus consisted of raised plaques, circular in outline; the center of almost all of the areas was depressed, while some of the lesions on the face and extremities were flaccid bullae containing little fluid. The epidermis was easily wiped off, leaving a reddish appearing base. The microscopic section showed intra-epidermal vesiculation and acute infiltrate situated in the papillary portion, and intense engorgement of the subcutaneous vessels. Photographs and microscopic section exhibited.

DISCUSSION

DR. WILE: These pictures deserve some discussion. It would be interesting to hear whether there was anything in the literature which would bear on the extraordinary pictures of intra-uterine lesions shown in this case. Dr. Michelson has spent much time in medical libraries looking up records, and he found some reference to prenatal and postnatal scarlet fever and chickenpox where it seemed that the eruption had existed for a short time before birth, but aside from that he had found nothing which had a bearing on this most unusual condition which he found in a fetus which was born at

6 months. This is an extremely interesting and rare example of what may occur as a prenatal dermatosis.

DR. FOERSTER: Dr. L. M. Warfield, recently of Ann Arbor, made the diagnosis of intra-uterine ichthyosis about twenty years ago, and reported the finding in the *Bulletin of the Johns Hopkins Hospital.*

LICHEN PLANUS (HYPERTROPHICUS). Presented by DR. LIEBERTHAL.

A man, aged 50, had suffered from early tabes and was greatly improved by mercurial treatment before he presented himself for treatment of his skin disease in 1910. He appeared only at rare intervals, and no change was noted. In 1922, he received four treatments with the roentgen ray, which improved the condition. After an absence of more than two years, he returned because of an epidermophyton infection of his feet. The lichen lesions on the legs were still present in the same degree as in 1922, but no other lesions of lichen planus were found elsewhere on the body at any time. He complained of mild itching of the legs.

LICHEN PLANUS HYPERTROPHICUS AND VITILIGO. Presented by DR. ZEISLER.

A woman, aged 48, had a disorder that had been present for a year and a half. On the lower third of one leg there was a small group of elevated, rough, purplish papules. She also had vitiligo.

SPOROTRICHOSIS. Presented by DRS. O. H. and H. R. FOERSTER.

A gardener, aged 38, was injured on the back of the right wrist by a barberry thorn eight weeks before presentation. A painful furuncular lesion appeared at the site of injury in a few days and developed into a granulomatous abscess. Cellulitis of the dorsum of the hand followed, and about two weeks after the appearance of the primary lesion a subcutaneous nodule appeared near the right elbow and was followed by a series of seventeen nodules along the line of lymphatic drainage of the ulnar margin of the right forearm. The nodules near the elbow varied from shot to pea sized; they were subcutaneous, noninflammatory and painless lesions. Those on the dorsal surface of the forearm at the wrist were pea sized, intracutaneous and inflammatory, though painless. One of the latter nodules, which had softened centrally, was incised, and the thick green pus planted on Sabouraud medium. A pure culture of *Sporotrichum schenckii* was obtained in three days. Rapid involution of the lesions had occurred during two and a half weeks of potassium iodid medication and fractional dosage of the roentgen rays.

DISCUSSION

DR. HARRY FOERSTER: The patient was presented because sporotrichosis is rarely seen at dermatologic meetings. The interesting features in this case were the presence of both subcutaneous and cutaneous gummas, the absence of lymphangitis, which is usually expected in this type of sporotrichosis, and the presence of a linear cutaneous infiltrate from the primary lesion to the nodules on the wrist, suggesting direct superficial extension in the cutaneous lymphatics. The etiology was also of interest, this being one of six cases from a common source. All the patients had been working with barberry shrubs, and had acquired the infection in the fall of 1924. This suggested that the disease has distinctly endemic and seasonal characteristics.

DR. SUTTON: At one time I saw many of these cases in my part of the country; on one occasion I reported thirty-two cases which I had seen in twelve months. During the past four months, I have seen two cases in Iowa and one in Texas. In my opinion, many of these patients do not go to dermatologists. They are treated by their family physicians with iodids and mixed treatment, which cures them before they reach a dermatologist.

DR. ZWICK: The United States Bureau of Agriculture recently sent emissaries all over the country to exterminate certain species of barberry as being the host of a wheat smut. From a botanical point of view it would interest me to know whether the presence of the fungus could be demonstrated regularly on the shrub and which species of barberry constituted the habitat, as it were, of the fungus. The saprophytic occurrence of the fungus has been noted before. The questions of true saprophytosis, of commensalism, etc., come up in this connection.

DR. FOERSTER: Cultures made of the thorns have failed to grow the sporothrix up to the present time. The law in Wisconsin prohibits the culture of the Canadian barberry, the variety in question being the Thunbergi, or Japanese barberry.

ERYTHEMA INDURATUM. Presented by DR. MCEWEN.

A woman, aged 37, whose disorder appeared on the legs seventeen years previously, had lesions which were typical of erythema induratum. There were about a dozen. The condition had disappeared at times, but had been worse during the past three or four years. The temperature had been suspicious, and the patient had spent some time at the Municipal Tuberculosis Sanitarium, where she was classed as "a negative patient." Treatment had been given with the Kromayer lamp, but results had not been encouraging.

PRURIGO (HEBRA). Presented by DR. WELFELD.

An Italian boy, aged 15, born in Chicago, whose general health had always been good, had a skin disorder that had been present since he was 6 years old, which had produced intense itching. His parents and five brothers and sisters were in good health and had no skin disease. The disorder always improved during the summer months. Physical examination, including laboratory tests, was negative.

DISCUSSION

DR. ZEISLER: So little prurigo is seen here that I sometimes wonder whether the elder Dr. Zeisler was not wrong in considering that it existed in this country. My father reported the first cases in 1889. I believe that the case under discussion is a prurigo, Hebra, although it does not have the distribution usually seen, or the lymphatic enlargement which is expected in these cases. Some features suggest the papular type of dermatitis herpetiformis.

DR. ZWICK: I favor the diagnosis of prurigo, Hebra. The "muddy" color of the patient's skin, the marked elevation of the pilosebaceous follicles, many of them excoriated, the long duration of the disease, its occurrence in an alien living in an unhygenic environment, the distinct generalized adenopathy, including the so-called prurigo buboes (of moderate degree), all support the diagnosis of Hebra's prurigo. This is the first typical case of the disease I have seen in the United States, but the picture was characteristic.

DR. SWEITZER: The patient gave a history of having some bullae, but there were none evident at present, and I have been unable to find any enlargement of the glands. It may be a case of dermatitis herpetiformis.

DR. PUSEY: I thought of dermatitis herpetiformis, and I looked carefully for bullae, without finding any. I believe it is a case of moderately severe prurigo. It is uncommon in this country.

DR. FOERSTER: I agree with the diagnosis of prurigo. This is one of the few cases that I have seen in the United States that actually meet the requirements as given by Hebra, for there is enlargement of all the superficial glands, infiltration of the skin increasing in degree from above downward, with the peculiar muddy color, characteristic eruption, drawn facies and history of long duration. I believe that it is a true case of the prurigo of Hebra.

DR. LIEBERTHAL: It was on my advice that the patient was presented. It is the first case of this disorder that I have seen in this country, but I have seen several in Europe, and I am confident of the diagnosis.

COCCIDIOIDAL GRANULOMA. Presented by DR. WAUGH.

This patient was presented at the annual meeting in January, 1923, and his case was reported by Dr. Davis in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, May, 1923.

Since that time, under roentgenotherapy and large doses of potassium iodid, the sinuses in the wrist remained entirely healed for some time, but two weeks ago a rather superficial active lesion developed. The lesions on both elbows improved satisfactorily, the sinuses healing entirely, and only recently had the disease become active again in those areas. There was no evidence of systemic infection at this time.

(Microscopic sections were presented showing *Coccidioides immitis* both in tissue and in a fresh smear.)

A CASE FOR DIAGNOSIS. Presented by DR. FINNERUD.

A boy, aged 15, a student with a negative family history, about one year previously had first noticed brown spots on the chest, and within a few days or weeks other spots of the same type were noticed on the neck, trunk and extremities. There was no subjective symptom, no other type of lesion had ever been present, and there was no history of preceding illnesses. He had taken no medicine except an occasional laxative, probably not more than a dozen phenolax tablets in his entire life. The patient thought the lesions had become paler during the past two or three months.

There were numerous round and oval, pea-sized and larger, yellowish-brown macules on the trunk and extremities, most numerous about the neck, axillae and back. The hands, face, scalp and mucous membranes of the mouth were normal in appearance. There was no scaling or elevation of the lesions and no evidence of beginning fibromas. Dermographism was slight. Scrapings had been negative for fungi. Histologic sections showed chiefly hyperpigmentation; mast cells were present in normal numbers.

DISCUSSION

DR. MOOK: I do not know what caused the pigmentation in this case, but I am reminded of four or five cases which I saw in soldiers in France following flea bites. The lesions in those cases were never red but slate color, and they greatly resembled the bites from pediculosis corporis. This boy's lesions were more like those than any others he had seen, but there was no history of his having been flea bitten. At first he thought the cases seen in France were due to some constitutional disturbance, but after seeing three cases in

two days after the patients had been flea bitten, and seeing them again a month afterward, he was convinced that the lesions were due to the flea bites.

DR. MICHELSON: I would suggest the diagnosis of pityriasis lichenoides chronica. The lesions stop abruptly at the collar line, and there are none on the hands. The areas on the body are peculiar in that they follow the lines of cleavage. Because of this distribution, the chronicity and the color of the individual lesions I am inclined to make that diagnosis, but I realize that the lack of scaliness is against it. As for the maculae ceruleae, the pigmented spots due to the bites of *Pediculi pubi*, although they might be present on the whole body, they usually occur over the front of the abdomen and on the flanks. The bites of fleas are pin point, purpuric lesions, and give the patient the appearance of having been sprinkled with cayenne pepper. Melanosis due to some grave constitutional condition can be ruled out because the patient is a coal heaver and works daily at his occupation.

DR. FINNERUD: I have studied the case rather carefully. I first thought of urticaria pigmentosa as the diagnosis. The mast cells in pathologic numbers are absent, and there is only a moderate dermographism. I do not know whether urticaria pigmentosa of the acquired type can be entirely ruled out. I thought of Recklinghausen's disease presenting only pigmented macules, and of guttate parapsoriasis. The history regarding drug taking is practically negative, and I do not know what the diagnosis is.

DR. BUTLER: The diagnosis of phenolphthalein eruption should not be disregarded. The patient has been taking phenolax tablets, and the eruption is gradually disappearing. It does not require many phenolax wafers to produce a rather long-standing eruption, and although in this case the lesions are generalized for such an eruption, I think this diagnosis should be considered.

DR. FINNERUD: I believe this can be ruled out, for the patient's mother said that he has not taken more than a dozen tablets of phenolax in his life, and not more than one or two during the past two or three years.

HYPHOGENOUS SYCOSIS ERYTHEMA NODOSUM. Presented by DRS. EISENSTAEDT and ZEISLER.

A man, aged 30, was first seen on Jan. 6, 1925, when he presented an eruption of the bearded region of the face, back of neck and left groin. The first lesion had appeared at the angle of the left jaw three weeks previously. This was soon followed by lesions on the neck, around the mouth and in the left inguinal region. There had been no contact with animals, and there were no subjective sensations. The lesions were papulo-nodular, with small pustules. Some painful, deep nodules had developed below both knees since the patient's admission to the hospital.

A CASE FOR DIAGNOSIS. Presented by DRS. PUSEY and SENEAR.

A man, aged 22, first seen on June 21, 1924, at that time presented a generalized, scaling erythroderma which involved the extremities more than other portions of the body, and which had first been noticed three years previously. The eruption had persisted practically unchanged since that time, becoming less noticeable during the summer. At irregular intervals, usually twice a year, the condition would become markedly worse, and the skin would become sensitive, with moderate malaise. He suffered little discomfort aside from this, and the condition was easily controlled by the occasional application of a bland oil.

On examination, in addition to the eruption, he showed a moderate enlargement of the superficial glands, especially of those draining the extremities. The enlargement was thought to be too marked to be due to the amount of inflammation present, but it varied according to the amount of inflammatory reaction. The past history and physical examination were essentially negative. Roentgenotherapy over the long bones, superficial glands and spleen produced a leukopenia, with increased relative lymphocytosis.

DISCUSSION

DR. WILE: I think that the case, without the blood findings or even with the suggestive blood findings, can be placed in the group of disseminated plaque form of parapsoriasis. In making such a diagnosis, one should regard parapsoriasis not as a disease entity, but as a syndrome occurring occasionally also in the course of a malignant lymphoma. In this case, I believe the patient may some day develop leukemia, with the infiltrates in the skin.

DR. PUSEY: I agree with Dr. Wile that it is a chronic, persistent, unchanging eruption. It is an interesting case. When the patient was first seen there was a more definitely scaling condition than at present, and he had some slight disturbance in his blood. I hope that his condition will not progress to lymphogranulomatosis, but I wish that his blood were in better condition.

DR. RAVITCH: I exhibited this patient a year before. At that time he had a general adenopathy, and difficulty in breathing. He had received roentgenotherapy, and his condition had cleared up very well. While Dr. Ravitch was in Europe, the patient went to New York for a time, and when he returned to Chicago he consulted Dr. Pusey and Dr. Senear. I saw the patient recently and thought he was getting along nicely. The blood picture was better. There was little scaling in the skin at this time.

PIGMENTATION DUE TO OIL. Presented by DR. OLIVER.

A man, aged 29, presented a pigmentation which had been present on the face for about two years. The condition developed while he was running a twisting machine in the plant of a large electric manufacturing company. The machine was used to wrap and wind strands of copper wire together, and while doing this work he was constantly exposed to particles of oil and dust from the copper and paper used. He had no pigmentation elsewhere, complained of no stomach disturbance and was seemingly in excellent health.

PEMPHIGUS: SUCCESSFUL TREATMENT. Presented by DRS. ORMSBY and FINNERUD.

A man, aged 58, was first seen on September 8, 1924, when the disorder was of eight weeks' duration. At that time there were lesions in the scalp, on the face, neck, trunk and extremities and in the mouth. The first lesion occurred in the scalp.

Treatment was immediately instituted with iron cacodylate and coagulen, and was carried out according to the technic suggested by Davis (Davis, Robert H., and Davis, W. D.: Arch. Dermat. & Syph. **8**:627-638 [Nov.] 1923). About fifty injections of each of these drugs were given. New lesions continued to develop for a period of seven weeks, and at that time a large portion of the cutaneous surface was involved. Then improvement began and continued steadily for two months, without relapse. At that time all activity of the disorder had ceased, and nothing but pigmentation remained. At the

height of the disorder the hemoglobin was reduced to 65 per cent., there were 17,800 leukocytes, 4,200,000 erythrocytes, and in the differential count 51 per cent. were eosinophils. At the time of presentation, the hemoglobin had increased to 91 per cent., the leukocytes had decreased to 10,200 and the eosinophils to 12 per cent. The patient apparently had entirely recovered and now presented only areas of pigmentation which were gradually fading.

DISCUSSION

DR. NETHERTON: During the last three months I have had a patient with the same picture, and the disorder has cleared up under the Davis treatment in about ten weeks from the time of onset. The patient at present is completely free.

DR. WILE: I believe it is proper to record the fact that under the stimulus of such cases as this and those in which Dr. Wende has obtained such extraordinary success, I carefully hospitalized several patients and carried out the Davis technic, but all of my patients died. I hope that it will be my good fortune to secure in this, in my hands, hopeless disease, as brilliant a result as Dr. Ormsby has obtained.

DR. ZEISLER: One of my patients, a man who had pemphigus, had been in desperate condition, with lesions of the mucous membrane, toxic phenomena and fever, but he made an unexpected recovery under treatment with liquor potassii arsenitis (Fowler's solution) and injections of coagulen. He has remained perfectly well, with no recurrence, for a year.

DR. O'LEARY: My experience with the Davis treatment has been much like that of Dr. Wile. Of twenty-six cases of pemphigus seen in the Clinic in the last few years, twenty patients complained of "sore mouth" and developed the cutaneous lesions of pemphigus while under observation. We have noted that the duration of the interval between the appearance of the lesions of the mouth and the development of the skin manifestations offers a fair prognostic sign as to the severity of the pemphigus. When the skin lesions followed the mouth lesions within a few weeks, the patients died within six or eight months, whereas when they had lesions of the mucous membrane for six months or more previous to the appearance of any cutaneous lesions, the disease usually had existed for several years. The studies reported by Eberson on the etiology of pemphigus no doubt have definite merit; but I have not been able to accomplish much therapeutically by the use of vaccines or serums made from the bacterium of pemphigus.

DR. FINNERUD: I studied the blood picture, and made differential blood counts at the height of the disorder as well as at other stages. When the disease was most active, the eosinophil count was 51 per cent., and this was checked up by several observers. This had gradually decreased and was now 12 per cent. Possibly the degree of eosinophilia might prove to be of some prognostic significance in pemphigus.

DR. COLE: I have seen five or six cases of pemphigus during the past two years, and four of the patients are now dead. One of them was seen by Dr. Wende recently, at which time I went over the careful technic with him again and used it thoroughly and carefully, but the patient died. One of the patients was given this therapy and was also given mercurochrome-220 soluble. She improved for a time, but was now back just where she was before the treatment was instituted. I hope that I may obtain as good results as those shown in Dr. Ormsby's case.

DR. ORMSBY: A disorder like pemphigus, in which patients have remissions which last for variable periods, must be kept under observation for a long time before one can decide as to the effectiveness of any method of treatment. I formerly thought that pemphigus always resulted fatally, for the majority of patients that I have seen with this disease have died. Only a few patients of the large number I have seen in my practice have survived. When I first saw the patient under discussion he appeared to be suffering with the malignant type of the disease. There were lesions of the body and of the mucous membrane and marked constitutional symptoms. Treatment with cacodylate of iron and coagulen apparently accomplished excellent results. During the same period I have directed similar treatment in two other cases, one of the foliaceus and one of the vegetans type. In the former the patient was treated by his physician at his home with iron cacodylate and coagulen for three months, followed by two months' treatment at the hospital in Chicago, using coagulen alone during the latter period. This patient, while not entirely well, is nearly so, as only a few areas of dermatitis persist. During the later stages this patient presented the clinical picture of dermatitis exfoliativa as no bullae developed.

The other patient was an Italian, aged 34, who was first seen, Sept. 25, 1924, and a diagnosis of pemphigus vegetans was made. The history stated that the disorder began in January, 1924, with white patches on the tongue and mucous membrane of the cheeks, and lesions appeared in the axillae in June. Those lesions ruptured, became infected and spread, and the discharge from the lesions had a foul odor. In September, a generalized bullous eruption followed. When the man was first seen at the Presbyterian Hospital the mucous membranes of the mouth and throat were denuded, making the taking of food difficult. Bullae of various sizes and excoriated areas were present over the back, buttocks, elbows, legs, feet and axillary spaces, and after several days the lesions over the body became vegetative. From the time the patient was first seen in September, he was given cacodylate of iron and coagulin, with considerable improvement during the third week of treatment, and the improvement continued until about the last week in October. At that time the lesions reappeared on the mucous membranes and over practically the entire cutaneous surface, and the patient died on Nov. 1, 1924.

In the three cases in which I have used the treatment, one patient is well, another greatly improved, and one is dead. I think the treatment is well worth trying, as it has been effective in clearing up the lesions in two cases.

LUPUS ERYTHEMATOSUS (TREATED WITH CARBON DIOXID SNOW). Presented by DR. OLIVER.

A man, aged 27, developed an acute lupus erythematosus of the discoid type while in France in 1918. He was treated with internal remedies and mild, soothing ointments until 1924. The lesions were treated with carbon dioxid snow on February 26, April 24, June 23, November 10 and December 5, 1924, and a few lesions were treated in January, 1925. The patch had completely healed. There was a smooth atrophic scar at its site.

PROGRESSIVE PIGMENTARY DERMATOSIS (SCHAMBERG'S DISEASE?). Presented by DR. BEESON.

A man, aged 23, presented a disorder of four years' duration. It began on the lower left leg, later appearing on the right lower leg. There were no

objective symptoms except a slight itching at times. The Wassermann reaction and blood chemistry were negative.

DISCUSSION

DR. COLE: There is a possibility that this may be a phenolphthalein eruption. It is difficult to get a history of drug taking in these cases.

DR. GRINDON: I do not see any of the characteristics of Schamberg's disease. There are none of the red pepper spots, and the lesions have neither the color nor the distribution of Schamberg's disease. There are only a few dark, rather sharply outlined brownish lesions.

NODULAR PRIMARY SYPHILIS. Presented by DR. STILLIANS.

A man, aged 25, whose disorder was of five weeks' duration, first noticed a large papule on the chin, which was followed by glandular enlargement one week later. The papule increased in size to 1.5 cm., with central softening, infiltration and induration of the border. There was no history of exposure during the past two months. The Wassermann reaction was negative on Dec. 29, 1924, but on Jan. 17, 1925, it was 4+. Gland puncture was positive for *Spirochaeta pallida*.

GRANULOMA FUNGOIDES. Presented by DR. ORMSBY.

A man, aged 53, was first seen in October, 1923, when he had a generalized, moderately pruritic eruption of nine months' duration. At that time the entire body was covered with pale and bluish-red, slightly thickened, oval and round, well defined plaques. On the trunk and posterior aspect of the thighs the lesions occurred as segments of circles and were more intensely red. A fungating tumor was present in the scalp. During the fifteen months the patient had been under observation new lesions had developed from time to time, and most of the older ones had disappeared. Radiotherapy and arsenic had been used.

Sections of tissue prepared by Dr. Finnerud were presented, and showed the following changes: marked acanthosis of the psoriasiform type, the papillae in places extending to the stratum corneum. There was a sharp line of demarcation between the cellular infiltrate of the edematous papillary layer and the underlying corium, the cellular constituents being almost entirely connective tissue cells of various types and lymphocytes. In some places there was no sharp dividing line between the epidermis and the corium. There was moderate dilatation of the lymph spaces and blood vessels of the papillary corium. Only an occasional plasma and mast cell was present, and no eosinophils were demonstrable. There was no apparent change in the elastic tissue.

DISCUSSION

DR. GRINDON: I wish to call attention to the fact that the patient said that he had very little itching.

ERYTHEMA AB IGNE RETIFORM PIGMENTATION. Presented by DR. ORMSBY.

A man, aged 50, was first seen in April, 1924, at which time there was a retiform erythema with beginning pigmentation over the back and sides in the areas near the spinal column, around the body past the nipple line, and from just above the axillary spaces posteriorly downward to the center of the dorsal region. On the back, a little above this area, was a patch of scarring

produced by herpes zoster. The hot applications which had been employed to relieve the pain of the herpes zoster were responsible for the pigmented disorder.

In 1911, Hartzell (J. Cutan. Dis. **30**:361, 1912) presented a photograph at the April meeting of the Philadelphia Dermatological Society of retiform pigmentation in a woman who had cancer. The condition was present on the lower half of the back and upper thighs in areas over which a hot water bag had been used for the relief of pain. This case with three additional ones were reported by the same author at the annual meeting of the American Dermatological Association in 1912 (J. Cutan. Dis. **30**:461, 1912). Buschke (Dermat. Ztschr., 1911, p. 109, and Dermat. Wchnschr. **77**:1266, 1923) in 1911 reported similar cases, and others have been recorded by Lehner and Kenedy (Arch. f. Dermat. u. Syph. **141**:325, 1922) and Ideur (Dermat. Wchnschr. **77**:1049, 1923) and Herxheimer and Koppenhofer (ibid., 1922, p. 141), in addition to cases quoted by Hartzell as recorded by English authors.

DISCUSSION

DR. ORMSBY: The only reason this patient was presented is that there has been a good deal in the foreign literature recently in regard to retiform pigmentation, and this case is an excellent example of the disorder. Dr. Hartzell reported a series of cases in 1911. This patient has herpes zoster accompanied by a great deal of pain, and the hot dressings employed to relieve the pain produced the retiform pigmentation. The term "ab igne" is not a good one, because the disorder is produced by heat and not by fire.

ICHTHYOSIFORM ERYTHRODERMA ICHTHYOSIS. Presented by DR. RAVITCH.

A man, aged 23, complained of an intense pruritus which had been present in different parts of the body for five years. At the time of presentation it was limited to the forehead. He had hyperkeratotic lesions on the legs and a bluish area the size of a quarter on the back. His oldest brother and his child were said to have ichthyosis simplex. Anhidrosis was absent.

DISCUSSION

DR. WILE: I hope the case is presented as one of ichthyosis and not as ichthyosiform erythroderma, which I believe is a very different disease. There is a marked patch of atrophy on the patient's back which is somewhat telangiectatic and resembles a patch of telangiectases following irradiation, although the patient says he has never received any roentgen-ray treatment. I consider the case an ordinary case of ichthyosis.

DR. RAVITCH: There is no question about the condition being ichthyosis, for the disorder is familial. The patient's father and a brother both had the same disorder.

MULTIPLE EPITHELIOMATOSIS. Presented by DRS. ORMSBY and MITCHELL.

A man, aged 77, who was presented before the Society at the December, 1924, meeting, since that time had received roentgenotherapy, and an ammoniated mercury ointment had been used, followed by disappearance of the tumor over the right shoulder, disappearance of crusting in various areas and the elimination of the slightly elevated margin formerly present in most of the lesions.

DISCUSSION

DR. MICHELSON: I hesitate to discuss the case, for it openes up the entire field of precancerous dermatoses. Before I saw the sections, I thought the case was one of severe seborrheic keratoses of the nevoid type. The sections, however, showed a squamous cell epithelioma with active mitosis. This demonstrates the fact that the malignancy of a case can not always be determined by the microscopic picture. I believe that there is a group of conditions which includes certain seborrheic keratoses, Bowen's disease and extramammary Paget's disease, which may be looked on as somewhat similar conditions which lead to the same result, namely, epithelioma.

DR. WILE: I do not think there is any relation between the clinical picture and the microscopic findings. I believe this patient has a larger number of typical keratotic lesions than I have ever seen in any malignant neoplasm, and yet I think no one would hesitate to give an excellent clinical prognosis for life in spite of the fact that the disease is well disseminated over the body. I believe there is no doubt that these malignant neoplasms are more likely to have this appearance under the microscope than are the squamous cell type. I consider the case valuable because it is definitely not a precancerous condition but a cancerous one of relatively benign nature.

DR. COLE: Will someone discuss the conditions from the standpoint of differentiation from Paget's disease? I think the conditions are closely allied, and in some of the lesions in the early stage it seems to be impossible to differentiate between Paget's disease and this condition. I understand that Dr. Foerster is able to do this, and I wish to know how he does it.

DR. FINNERUD: Clinically and in the sections there is a marked inflammatory reaction. As Dr. Pusey said when the patient was presented in December, these cases responded readily to treatment, with carbon dioxid snow, roentgenotherapy or other treatment. From the way in which these cases responded to treatment and in spite of the histologic findings, I think the relation to Paget's disease is about the same as that of basal cell epithelioma to the malignant type.

DR. ORMSBY: I believe the condition is a clinical entity. We have been seeing it for a number of years, and I am sure that some cases have been reported under the caption of Paget's disease. It is impossible to tell clinically which condition it is, but histologically, this can be done. I do not believe it is Bowen's precancerous dermatosis. They are cases of basal cell epithelioma for the most part, but occasionally a squamous cell type develops in certain of the areas. They are so characteristic clinically that they should be recognized as a form of epithelioma. We have seen two cases associated with psoriasis, and there are several others on record. I believe that there is no connection between the two disorders, but they occurred in the same patient. Graham Little reported a group of these cases under the term "Erythematoid Benign Epithelioma" (Brit. J. Dermat. **35**:435-450, [Dec.] 1923).

DR. GRINDON: There should be some special name by which to differentiate these cases. Every one who has seen epithelioma has seen this type. It is interesting because on the basal cell type with abundant mitoses the prickle cell type may perhaps be implanted. I should like to ask Dr. Ormsby whether he thinks the temporary, partial healing is characteristic of this type.

DR. ORMSBY: I have seen a number of patients who have entirely recovered. Some of them did not show the very fine epithelioma border, and the histology was not that of an epithelioma in some of the patches.

DR. MOOK: I think the cases belong to what Darier has described as "dyskeratosis." In most of Darier's cases the patients did not develop malignancy, but the condition continued as chronic, red and inflammatory something like that seen in Paget's disease. They did not develop the vacuolated cell type, as does Paget's disease and Darier classed them as dyskeratosis.

EPITHELIOMA OF THE TONGUE. TREATED WITH RADIUM EMANATION. Presented by DRS. SIMPSON and FLESHER.

A patient, aged 78, in December, 1923, had twenty-two glass emanation ampules implanted in the tongue, with a total of 20 gm. hours at 3 cm. distance to the neck.

He was clinically well for about a year.

A patient, aged 68, in July, 1921, had fifteen glass emanation tubes inplanted in the tongue, with a total of 20 gm. hours, at 3 cm. distance to the neck.

He was clinically well for about three years.

A patient, aged 68, in July, 1923, had thirty glass emanation tubes (21 mc.) implanted in the tongue, with a total of 22 gm. hours to the neck.

He was clinically well for about one and one-half years.

A patient, aged 50, in February, 1923, had ten glass emanation tubes (5 mc.) implanted in the tongue, with a total of 18 gm. hours at 3 cm. distance to the neck.

He was clinically well for about one and three-fourths years.

A patient, aged 50, in April, 1923, had thirty-three glass emanation tubes (25 mc.) implanted in the tongue, with a total of 18 gm. hours to the neck.

He was clinically well for about one and one-half years.

A patient, aged 42, in December, 1921, had four glass emanation tubes (8 mc.) implanted in the tongue, with a total of 14 gm. hours, at 3 cm. distance to the neck.

In May, 1924, twelve ampules (6 mc.) were again implanted in the tongue, with 11 gm. hours, at 3 cm. distance to neck.

He was clinically well.

KERATOTIC NEVUS OF THE NOSE. ANGIOKERATOMA. Presented by DR. ZEISLER.

A woman, aged 45, presented a lesion on the nose, of two years' duration, which had been ineffectually treated with radium, the Kromayer lamp and carbon dioxid snow. When presented, there was a group of minute telangiectatic areas partially covered by a keratotic crust.

The patient also had a chronic bronchitis, which was not definitely tuberculous.

DISCUSSION

DR. SUTTON: I believe the condition is an angiokeratoma, which is ordinarily found on the extremities. Genito-urinary specialists have called my attention to these little keratotic lesions on the scrotum. In those instances I have never seen one originate on the surface of a vascular nevus, as in this case, but there is no reason why this should not occur. I think it is a typical angiokeratoma, and I believe that histologically the peculiar appearance is due to capillary enlargement. In many instances I have found the perivascular elastic tissue absent, and Nature, to overcome this, builds up a hyperkeratotic wall on the surface of the skin.

DR. GRINDON: I believe the condition is lupus erythematosus, with telangiectases due to irradiation.

DR. STILLIAN: I am interested in the case because I have observed it from the beginning. When first seen the patient had a rather sharply defined pink erythema on the side of the nose. He was presented before the Society, and it was thought to be an acquired nevus. It continued without change for some time, and then the patient complained of small, wartlike lesions in the nose, which cleared up under treatment with a little ointment. In spite of radium therapy, carbon dioxid snow and quartz lamp treatment, she developed the telangiectasis and the wartlike lesions now present.

EROSIO INTERDIGITALIS SACCHAROMYCETICA. Presented by DR. LIEBERTHAL.

A woman, aged 45, who had been doing housework, especially washing and scrubbing, for many years, showed lesions which had been present at intervals for more than thirteen years. A seborrheic dermatitis of the scalp and ears developed two years before presentation and a year and a half ago her left breast was amputated because of a chronic cystic mastitis. Seborrheic dermatitis had recently appeared over this region, and there was lymphatic stasis of the left arm. She also had an epidermophyton infection of the toes.

MYCOSIS FUNGOIDES. Presented by DR. ZEISLER.

A woman, aged 50, whose disease had run a progressive course for several years, six months ago was in a very bad condition, bedridden, with edema of the legs, and the body covered with large fungating tumors and ulcers. She had been treated with sulpharsphenamin over a long period. Under roentgenotherapy, permanganate baths and arsenic the lesions had undergone rapid involution, and the patient was able to return to work.

DISCUSSION

DR. ZEISLER: I am fortunate in being able to present the patient, because six months ago I thought that she surely would die as she was apparently in the last stages of mycosis fungoides. At this time there were no active lesions. I avoid any suggestion of cure because it is well known that the lesions in this disease may involute spontaneously.

TUMOR OF THE SCALP. Presented by DR. SENEAR and DR. USHER.

A girl, aged 15, had a mass in the scalp which first appeared about eight months before. In the beginning the lesion was crusted, but it soon healed, following which it rapidly increased in size until it reached that of a baby's fist. It was slightly tender on palpation, but it had never caused any discomfort aside from this. The scalp otherwise showed no abnormalities, and the personal history and family history were essentially negative.

DISCUSSION

DR. GRINDON: I considered the condition a lipoma at first glance, but on pressure the whole thing disappeared, and I believe it is a deep angioma.

DR. ZWICK: An aspiration of the lesion might assist in clearing up its nature. The presence of cholesterol in the aspirate can easily be demonstrated.

DR. SENEAR: I thought of lipoma, but I was interested in the possibility of the lesion being of the type of cutis verticis gyrata which appears later in life. The history was that of a preliminary inflammation followed by

this change, which in its morphology was not in line with that picture, but suggested it somewhat clinically. The lesions have a distinctly wormy feel on palpation.

A Case for Diagnosis. Presented by Drs. Senear and Weber.

A man, aged 49, had been seen first about one week before presentation. About nine months previously he had noticed a purplish-red spot on the left cheek, which gradually increased in size in spite of treatment, and during the first two weeks fresh spots appeared on both cheeks and on his chin. No new spots had appeared since then. All the spots had shown alopecia from the onset, and had steadily increased in size. Five months ago, following the application of 5 per cent. naphthalene, whitish, pinhead-sized lesions appeared on these spots, and remained as small milia. The patient stated emphatically that these did not appear until several months after the onset of the trouble. He also showed atrophic spots the size of a split pea scattered diffusely over his face, neck and upper part of the back.

With the exception of severe acne and gonorrhea as a youth, the past history was essentially negative.

Treatment had consisted of various ointments.

DISCUSSION

Dr. Senear: The small whitish lesions which might pass for pustules contained a sebaceous material unless they were secondarily infected. I have no idea what the primary eruption might have been. It did not conform to sycosis barbae, and I believe the whitish lesions were a secondary manifestation, perhaps influenced by the use of ointments with a greasy base for a long period.

Gumma of the Neck. Presented by Drs. Eisenstaedt and Zeisler.

A man, aged 55, was first seen on Jan. 8, 1925. About six weeks before that time pain and stiffness appeared in the neck, and the patient soon noticed a swelling, which enlarged and finally ruptured, forming an ulcer which did not heal. The Wassermann reaction was 4+, and the patient was on antisyphilitic treatment.

Xerosis and Dermatitis. Presented by Dr. McEwen.

A girl, aged 13, had dermatitis which had been present for about a year and which involved the face, hands and arms. The general skin surface was dry and xerotic. One sister had the same trouble (dermatitis), which began when she was 2 years old, and an older brother had a beginning dermatitis on one hand.

The patient was shown because of the family history.

DISCUSSION

Dr. McEwen: I am interested in the case because the facts that one sister of the patient has had a dermatitis since she was 2 years old and an older brother has developed the condition on the hands suggest a familial skin vulnerability.

Blastomycosis and Vitiligo. Presented by Dr. Stillians.

A negro worker in a chemical factory gave a history of having white spots in the skin for fourteen years. In 1912, the left side of his chin, his

left ear and a spot at the center of his forehead were said to have been clear white for a short time, gradually becoming brown again, the same type of spots appearing in other areas from time to time. In 1921, he worked as a teamster, but he had had nothing to do with horses since that time. In August, 1924, he was admitted to the hospital for the treatment of gonorrhea, and at that time he had had a "wart" on his nose for a month. This grew rapidly, and similar lesions appeared on the nose, ears and fingers. A biopsy section was first diagnosed as carcinoma, but later examination revealed blastomyces. At the time of presentation there were two depressed scars, with overhanging edges, on the nose. One of the lesions had been excised, but the other was not. On the forearms and hands were many small patches of vitiligo, with larger ones on the scrotum and elsewhere, noticeably on the lips.

BLASTOMYCOSIS. Presented by DRS. STILLIANS and OLIVER.

A Polish laborer, aged 42, gave a history of having had an eruption on the left cheek, right arm and neck five years before presentation. All these lesions except one on the neck had healed on treatment, but the one lesion increased in size until it nearly surrounded the neck. It was composed of scars and erosions, bordered by a rim of warty excrescences, with a narrow, sharply elevated outer border which contained a few tiny abscesses from which blastomyces had been recovered. The lesion extended onto the chest in a V-shaped area, and the head was drawn down and to the left by scar tissue.

DISCUSSION

DR. O'LEARY: Bipolar electrocoagulation or desiccation is of considerable help in the treatment of blastomycosis in conjunction with iodids and the roentgen ray. It has been particularly valuable in treating the resistant, advancing borders. It is not advisable to "cook" the lesion as thoroughly as has been done in the treatment of malignant growths by this method. Systemic involvement has not been encountered in any of our cases, and the possibility of such a complication is remote because of the scaling off process as a result of the slow cooking.

ANNULAR SYPHILIDS, CONDYLOMATA LATA. Presented by DRS. EISENSTAEDT and ZEISLER.

A negress, aged 21, had an itching skin eruption on the face, neck, arms, chest and back, and warty lesions on the vulva. The lesions appeared on the face in December, 1924, and soon spread over the other areas.

The Wassermann reaction was 4+, and the patient had received two injections of neo-arsphenamin, with mercurial inunctions and potassium iodid. The lesions on the face and neck presented concentrically placed circles up to the size of a 25 cent piece. Some of these lesions coalesced, giving rise to a gyrate outline, especially on the neck.

MULTIPLE TUMORS. Presented by DR. ZEISLER.

A man, aged 20, had a disorder of two years' duration. There were multiple slowly growing subcutaneous tumors on the trunk, in both axillae, the anterior axillary folds and the midline of the sternum. They were solid, firm, yellowish nodules. A biopsy had been made, but unfortunately the sections were lost before a diagnosis was made.

DISCUSSION

DR. SUTTON: The lesions look like those of xanthoma. I suggested puncturing the lesions, but the patient objected.

DR. AUNER: Does the patient give a history of glycosuria?

DR. PUSEY: I believe the condition is a sebaceous cyst. Sebaceous material is visible when the lesions are under tension.

DR. ZEISLER: There is no history of glycosuria. My original diagnosis was multiple sebaceous cysts, but I think possibly it is a colloid degeneration of the skin. I shall try to obtain some more material for study.

TUBERCULAR LEPROSY. Presented by DRS. STILLIANS and OLIVER.

A Mexican steel worker, aged 24, gave a history of an attack of pain in the left leg, with fever, which had lasted for one week, three and a half years previously. Two years later nodules appeared in the ears, then on the face, hands, arms, feet and legs. When he was admitted to the Cook County Hospital he had a nodule on the bridge of the nose, 1.5 cm. in diameter, covered with shiny, waxy looking skin, with dilated blood vessels coursing through it. Both ears, nose, cheeks, chin, forehead, arms, hands, legs and feet presented many brown nodules and papules. No anesthetic areas had been found, no enlargement of the ulnar nerves and no atrophy of the interossei. He had received a number of injections of ethyl esters of chaulmoogra oil, and when presented was receiving 4 c.c. a week. After the injections his hands became swollen, and remained so for several days. Hansen's bacilli had been found in the nasal mucosa.

DISCUSSION

DR. OLIVER: We are receiving better cooperation from the government at present in having these patients removed to the proper place. We recently discharged four patients who were sent to the leprasorium. In all the cases there was marked improvement under treatment with the esters of chaulmoogra oil.

LUPUS VULGARIS. Presented by DR. ORMSBY.

The patient, who was 15 years old, was presented to show the improvement which had been brought about by the local application of a 50 per cent. salicylic acid ointment, as recommended by Reid (Brit. J. Dermat. & Syph. **35**:383, 1923). The disorder developed when the patient was 1 year old. The lesions occupied the right side of the neck, extending to the shoulder. From May until November, 1923, acid nitrate of mercury was employed on small areas, followed by fair results. From November, 1923, until the date of presentation the salicylic acid ointment had been used, with interruptions from time to time. More than four fifths of the patch had cleared up, leaving an inconspicuous scar, but activity remained in several small areas.

DISCUSSION

DR. ORMSBY: I am not sure that the treatment will clear up the disorder, but there has been marked improvement. The patient has been treated for many years, with little effect. One would expect 50 per cent. salicylic acid to act like a cautery, but it only produced desquamation. When there was much reaction, I used a soothing ointment for a time and then continued

the treatment. My idea was to continue it as far as possible, and then treat the few remaining nodules otherwise. The improvement has been rapid, and the scarring inconspicuous.

TRICHOPHYTON ECTOTHRIX, ERUPTION OF THE HAND. Presented by DR. ZEISLER.

A man, aged 25, had been burned on the hand with a cigaret two and one-half weeks before. He presented an annular patch on the dorsum of the hand, with vesicopustules at the border. Smears from the lesion showed an ectothrix organism.

PITYRIASIS RUBRA PILARIS. Presented by DR. BEESON.

A man, aged 42, had had disorder for seven years. The first lesions appeared on the palms. There was a characteristic thickening of the palms, soles and nails. The pathognomonic horny papules were present on the backs of the fingers.

DISCUSSION

DR. PUSEY: I should diagnose symmetrical keratoderma and ichthyosis. I do not think it is pityriasis rubra pilaris.

DR. BUTLER: I consider it a typical case of pityriasis rubra pilaris, and I believe that too much potassium arsenite solution (Fowler's solution) had been given. There is more hyperkeratosis than is usually present in this disorder.

DR. PUSEY: There are no inflammatory lesions anywhere on the man's body, except a little patch on the elbow, which might easily occur in a skin such as his. He had symmetrical hyperkeratosis of the palms, which I believe is congenital. It is clearly a picture of symmetrical keratoderma of the congenital type.

DR. BUTLER: I have seen cases of pityriasis rubra pilaris which did not at times show the scaling, but only the hyperkeratosis and follicular plaques on the backs of the phalanges.

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## MANHATTAN DERMATOLOGICAL SOCIETY

*February, 1925*

PROLIFERATIVE GINGIVITIS OF PREGNANCY. Presented by DR. MONASH.

The condition is a generalized affection of the margins of the gums which occurs in pregnant women, increasing during pregnancy and giving rise to considerable tumor formations. The patient presented large tumors on the gums. During her first pregnancy, she had had a tumor between the cuspid and first bicuspid. This had been excised and found to be made up of chronic inflammatory tissue. The tumor on her palate was present at that time, but was not removed. After the birth of her child, the tumor receded and became smaller, and in her second pregnancy it reached a considerable size. The tumor formation in this condition tends to proceed at points where there are spaces between the teeth. Dr. Monash has watched four cases of this kind, but he has not seen them described in the literature of more than twenty years. In

two of the cases which he had followed, the tumors, which had reached one half inch (1.2 cm.) dimension, disappeared completely after the birth of the child. All of the growths which were removed were inflammatory tissue, as shown by the microscope.

DISCUSSION

DR. WISE remarked that he thought it unusual that the condition which Dr. Monash has brought to the attention of the society should not have been described before, either by dermatologists or obstetricians.

DR. GILMOUR said that he had seen shiny tumors of various types but few had looked like these. He thought it might be possible to find the condition described in surgical books.

DR. SATENSTEIN stated he had seen a case similar to this one in a man. The histologic diagnosis by Dr. Larkin was periosteosarcoma.

DR. LEVIN said that if this condition occurred only in pregnancy, it would be interesting to keep in touch with these patients and study them from an endocrinologic standpoint.

A SERIES OF CASES OF TUBERCLE OF MIBELLI IN PATIENTS WITH CONGENITAL SYPHILIS. Presented by DR. PAROUNAGIAN.

The patient, George L., previously shown at the Academy of Medicine, February, 1925, aged 8 years, was referred to the Bellevue clinic for the treatment of interstitial keratitis. On Dec. 19, 1924, he showed a four plus Wassermann test. His mother had been a patient at the clinic since March 7, 1923, and her Wassermann tests on five occasions were reported four plus. The father's Wassermann test on Jan. 27, 1925, was four plus. The child showed a high palate arch, an imperfect hair line and pronounced tubercles of Mibelli.

An older brother of the patient had been a patient at the clinic since March 21, 1923. He also showed a four Wassermann reaction and some syphilitic eye condition for which he had received considerable treatment.

D. M., aged 9, whose parents were patients at the Bellevue clinic with four plus Wassermann tests, was referred to the clinic for the treatment of interstitial keratitis. Her Wassermann test was positive on admission, Jan. 17, 1923, and the last test made on Sept. 24, 1924, was four plus.

R. M., aged 5, a sister of the patient D. M. described above, was seen at the Bellevue clinic on Aug. 27, 1924, with condylomatous lesions at the angle of the mouth. Her Wassermann test on Aug. 27, 1924, was four plus. Her father's Wassermann test was four plus on Sept. 4, 1924, and her mother's Wassermann test, taken on Sept. 3, 1924, was likewise four plus.

M. Mc., a girl, aged 6 years, was referred to the Bellevue Syphilis Clinic on Nov. 5, 1923, for treatment. She presented interstitial keratitis and a four plus Wassermann test. The palate arch was high, the hair line imperfect, and tubercle of Mibelli were present. The father and mother were patients at the clinic. The father had had a chancre in 1911, and had received three intravenous injections of arsphenamin and forty injections of mercury at the Bellevue Hospital. He had considerable trouble with his eyes, and was operated on for this condition. Seven months previously, his Wassermann test was two plus. The mother had had a syphilitic infection eleven years previously. She had received several injections of arsphenamin prior to her admission, and when on Nov. 21, 1923, she became a patient at the hospital, her Wassermann test was four plus. After having received considerable antisyphilitic treatment, her Wassermann test was still four plus on Nov. 12, 1924. The child had

received treatment with neo-arsphenamin, mercurosal, silver arsphenamin, iodids and bismuth. Her last Wassermann test, Jan. 28, 1925, was two plus.

Arthur L., aged 6 years, was brought to the clinic on request, after the mother had visited the syphilis department. The mother had revealed acute syphilitic iritis, sore throat and a four plus Wassermann test. The child's Wassermann test was positive, and he showed convincing evidence of congenital syphilis. Both mother and child are at present receiving active antisyphilitic treatment at the Bellevue clinic.

Alice G., aged 21, who was admitted to the Bellevue Syphilis Clinic on July 23, 1924, complained of an infected toe (gumma). She had been troubled with frequent sore throats and swellings of the glands of the neck. Her Wassermann test was four plus, and it was discovered later that her father was also a patient at the clinic. She manifested evidence of congenital syphilis and improved satisfactorily under antisyphilitic treatment. Later, her mother became a patient at the clinic. She showed a large nodular syphiloderm of the left forearm of more than eight years' duration. The mother's Wassermann test was four plus.

Harold M., aged 7 years, was admitted to the Bellevue Syphilis Clinic on March 28, 1923. The Wassermann test on that date was four plus. The chief complaint was "nervousness." He revealed an imperfect hair line, high palate arch and tubercle of Mibelli. He has received considerable antisyphilic treatment. The mother has been treated at the clinic since Nov. 9, 1922. She also had a four plus Wassermann test, having been infected twelve years previously. She had had one still birth and two miscarriages.

DISCUSSION

DR. GILMOUR expressed gratification at having seen these cases as they were more than he had hitherto seen at one time.

DR. SATENSTEIN remarked that in 1916 Dr. Kauffer of the Vanderbilt clinic was interested in this condition, and he had prepared a number of sections of tissue which were studied under the microscope. These had revealed only perfectly formed enamel with no inflammation.

DR. LEVIN said that these tubercles might occur in patients who did not have congenital syphilis.

DR. SCHEER expressed interest in seeing the irregular hair line which Dr. Parounagian had pointed out. He had seen this in a number of school children, but, unaware that it might be an indication of congenital syphilis, had paid little attention to it.

DR. LEVIN replied to Dr. Scheer's statement about the irregular hair line as shown in these cases that this might also be found in adrenotropes.

DR. PAROUNAGIAN said that he has been watching a number of these cases, and, as he said at the Academy of Medicine Section the week previous, the tubercles were much more frequently seen in congenital syphilis than were the Hutchinson teeth. In every one of the cases presented this evidence was corroborated. Either the mother or father or sisters or brothers, or all, had positive Wassermann tests. These evidences often were accompanied by positive clinical signs, such as interstitial keratitis or, as in one of the patients, condylomatous lesions of the mouth. He had observed numbers of such cases and could not find the tubercle of Mibelli without the accompaniment of the other conditions which were described.

URTICARIA PIGMENTOSA. Presented by DR. WALLHAUSER.

I. F., presented a generalized pigmented eruption which he stated began two months previous, appearing first on the abdomen and gradually spreading to other localities, involving the chest, back, abdomen and extremities. The face, soles and palms were free from the eruption. The primary lesions consisted of a pea-sized, pinkish, slightly elevated macule, which became flattened in about two days and gradually assumed a pigmented appearance, varying from light brown to a deep black, which persisted. On rubbing an area, these pigmented lesions became slightly elevated.

DISCUSSION

DR. GILMOUR called attention to the interesting occurrence of urticaria pigmentosa and herpes zoster at the same time.

DR. SCHEER inquired whether Dr. Wallhauser considered urticaria pigmentosa in adults the same condition as urticaria pigmentosa in children. Some physicians contend that they are different affections. He would also like to ask Dr. Andrews about roentgen-ray therapy in urticaria pigmentosa.

DR. WISE said that he thought the case was one of the most interesting of its kind. He thought it was the same disease as that seen in children. In making a biopsy in cases of this kind, one found that the tissue did not always show the characteristic mast cells, but it was the general opinion that if several biopsies were taken at different times mast cells would appear eventually in greater or lesser numbers.

DR. ANDREWS replied to Dr. Scheer that he had never treated a case of this kind with the roentgen rays. In his book, Dr. MacKee, quoted some authors who stated that the roentgen-rays had been efficacious in urticaria pigmentosa.

DR. LEVIN cited a case at the Cornell clinic in which he had tried roentgen-ray therapy. While the patient was relieved of the intense pruritus, the lesions were not affected.

DERMATITIS HERPETIFORMIS. Presented by DR. BECHET.

J. M., a girl, aged 9 years, came to Dr. Whitehouse's service at the New York Skin and Cancer Hospital for the relief of an extremely pruritic eruption which the mother stated had been present for three years, with periods of remission. The present attack was of six months' duration. The body, including the hands and arms, was covered with excoriated, scarred, pigmented spots. Papules and vesicles were also present. There was no definite tendency to grouping. The child occupied the same bed as her mother, who had remained uninfected. While the eruption somewhat simulated scabies, the history, morphology and character of the lesions all pointed to dermatitis herpetiformis.

DISCUSSION

DR. WISE said that he had little doubt as to the accuracy of the diagnosis as presented, but he would like to have the case under observation in order to have his opinion confirmed. He thought there was a suspicion of scabies in this case, or the possibility of a mixture of scabies and Duhring's disease. Of course the fact which militates against scabies is that the mother, who slept with the child, did not contract the parasitic disease.

DR. LEVIN suggested that atophan be tried out in this case because of the effect which it has in some cases of neurodermite.

DR. BECHET stated that he made a diagnosis of scabies when he first saw the case, but the disease had been present for three years with periods of remissions. The mother had slept with the child and did not have the disease. There was scarring and pigmentation. The condition was extremely pruritic, as evidenced by the excoriations. There were also vesicles. He was therefore convinced that dermatitis herpetiformis was the correct diagnosis.

EXTENSIVE GUMMATOUS LESIONS OF THE LEG. Presented by DR. PAROUNAGIAN.

Mrs. I. D., aged 33, was shown at the January meeting of the society. After having received five injections of silver arsphenamin and six of mercuric salicylate, she had shown over 70 per cent. improvement. The patient will be shown again after the lesions have completely healed.

DISCUSSION

DR. GILMOUR said that it was interesting to know that no local treatment had been administered. He would have applied 10 per cent. blue ointment.

DR. PAROUNAGIAN, in reply to Dr. Gilmour's suggestion as to local treatment, said that he thought the patient would do just as well without any local applications. She had received local therapy before she was admitted to the clinic. He would present her again when she will have completely recovered.

MULTIPLE GUMMAS AND FIBROID SYPHILOMAS OF THE SKIN, SUBCUTANEOUS TISSUE, MUSCLES, TENDONS AND PERIOSTEUM. Presented by DR. LEVIN.

S. M., aged 55, married, reported at the Mount Sinai Hospital Clinic on the afternoon of the presentation for an opinion as to the marked deformity of the left upper extremity. He was the father of seven children, three of whom had died as a result of accidents. His wife was ill with some hemorrhagic uterine condition. She had had one miscarriage. He said that he had not had any venereal infection and that he had received no form of injection. He reported that the lesions had first appeared about five years prior to his admission, originating as small, hard nodules, which gradually increased in size and number Some of them had broken down to form ulcers A blood test taken recently at another hospital was said to have shown an infection of the blood. The patient presented no evidence of syphilis on his body except for the condition of his left upper extremity. The left upper extremity showed the presence of more than a dozen globular, ovoid, firm, hard, bonelike, smooth growths varying in size from that of a hazelnut to that of a small orange, which produced a marked deformity in the region of the wrist, causing large swellings over the ulna and radius, and involvement of the flexor tendons. The patient was forced to keep his hand in a half closed position. In the region of the elbow, there were three of these tumors which had broken down, giving rise to nickel-sized, punched out, clean ulcers, with sharp walls and a red granulating floor which revealed a purulent discharge. The front of the forearms showed subcutaneous, deep, firm, hard tumors. Some of these were movable, while others were firmly attached to the bone and were of bonelike hardness. The flexor tendons showed sausage-shaped, hard infiltrations which interfered with the movements of the fingers and hand. On the front of the right forearm were two sausage-shaped, subcutaneous, firm infiltrations about 3 inches (7.6 cm.) long and 1 inch (2.5 cm.) wide. The skin over the lesions showed no change in color nor any evidence of inflammation except in the parts adjacent to the ulcerated lesions.

DISCUSSION

DR. PAROUNAGIAN said this was an interesting and extremely rare case. He had presented one some time ago because he thought it was interesting.

DR. LEVIN in reply to Dr. Wise's query as to response to treatment said that this patient came to the clinic the afternoon of the presentation and as yet had received no treatment. He could recall two adults, one a man and the other a woman, who had shown lesions on the elbows similar to these. The lesions had disappeared after the first course of treatment. A patient whom Dr. Schwartz presented at the New York Dermatological Society showed fibroid syphilomas of the fingers which responded to treatment.

PRECANCEROUS DYSKERATOSES (Darier's Type). Presented by DR. LEVIN.

G. A., a man, aged 53, had appeared at the Cornell clinic six days prior to the presentation, complaining of an obstinate condition of the skin which had resisted all forms of treatment. The condition was of one year's duration. He stated that he had had eczema twenty years before. The lesions which he now presented had first appeared on the extensor surfaces of both arms. There were no lesions on the trunk. The extensor surface of the right arm was affected years ago, and the left arm had become involved four months before. He stated that he had taken no arsenic; he had been taking some cathartic preparation.

The extensor surface of the right arm presented an irregular round patch which was fairly sharply defined, glistening, and dark red, and which showed a border which was slightly elevated and infiltrated. The surface of the lesion was covered with firmly adherent scales and crusts. The greater part of the patch showed distinct atrophy. On the extensor surface of the left arm, there were two dime-sized lesions of similar character, but distinct pearly borders were not evident in these lesions. Scattered over the extremities on the extensor surfaces, mainly in the region of the elbows, were several bean to silver dollar sized, round, oval, sharply defined, elevated lesions covered by heaped-up yellowish and yellowish-white crusts and scales. These scales and crusts when removed showed surfaces which were moist and glistening red. The lower extremities, chiefly on the extensor surfaces, presented about a dozen similar lesions, suggestive of psoriasiform seborrheic eczema. Discrete and aggregate lesions were scattered over the front of the lower extremities. The legs showed large, red, moist, oozing, sharply defined eczematoid patches. The Wassermann test was negative. A piece of tissue had been removed, and reports of the pathology will be read at a later date.

Biopsy of tissue from right arm showed epithelioma; that from an inflammatory, crusted lesion revealed inflammatory reaction.

DISCUSSION

DR. WISE agreed with the diagnosis. He believed the lesions on the upper left arm would show epithelioma if examined microscopically, and he would call the condition cancerous rather than precancerous. As for the rest of the lesions, he thought it more appropriate to call them just keratoses, because it is difficult to predict that they will become cancerous, and they showed no signs of proliferation.

DR. BECHET said that the lesions on the body differed from the one on the left arm. He thought as did Dr. Wallhauser, that these were simply seborrheic eczema.

Dr. Eller said that he thought the patient had two different conditions. The lesion on the left arm was an epithelioma and the rest of the eruption was simply seborrheic eczema. The patient gave a history of having had seborrheic lesions on the scalp several years before.

Dr. Andrews agreed with the other speakers that two different conditions were presented. He thought the blood arsenic content would prove of interest.

Dr. Satenstein expressed interest in hearing those who had discussed the case say that the condition on the left arm was undoubtedly precancerous. He did not see on what basis they made that diagnosis. There was atrophy and the edge appeared to be pearly it was true, but he was certain that in a microscopic study of the pearly edges no evidence of epithelioma would be found. He thought there would merely be the evidences of inflammatory tissue. He agreed with the others that the rest of the lesions were seborrheic eczema.

Dr. Mount said that he had a patient who had showed more than one such lesion, which under the microscope revealed epithelioma. He thought in this case that Dr. Levin had diagnosed the condition correctly. All the lesions which he had described could be found in Darier's description, even those patches which looked like seborrheic eczema and the weeping areas.

Dr. Scheer stated that he noted with approval that the name Bowen's disease was not affixed to this dermatitis because this name has been rather loosely applied. He had a patient at the Mount Sinai Hospital who presented from fifty to one hundred such lesions on the body, which looked very much like psoriasis except that scales were absent. In color they resembled seborrheic eczema. This patient also had senile keratoses and two epitheliomas. Dr. Mandelbaum examined sections from one of the erythematous patches and found only chronic inflammatory tissue. The sections taken from the keratoses had revealed dyskeratotic changes similar to those described by Darier, and the epitheliomatous lesion was like those found in Paget's disease. This patient also had atrophic areas like those described by Dr. Levin.

Dr. Mount remarked that in the case which he had described there had been many of the lesions described in this case and also one on the shoulder which was a true epithelioma.

Dr. Levin said that all the lesions were part of the same condition. There were lesions resembling seborrheic eczema. The lesions on the arms were suggestive of lupus erythematosus. Darier in his description of the condition noted that it often resembled various other dermatoses. If the lesions on the arms had been situated on the nipples they would have been diagnosed as Paget's disease. The lesions in this case differed from those seen in Bowen's disease in that they were less infiltrated and did not show the formation of nodules. It is possible that some of the lesions, particularly those on the arms, on biopsy would show the presence of epithelioma. (Biopsy of lesion from arm showed basal cell epithelioma).

Parapsoriasis. Presented by Dr. Oulmann.

A Russian by birth, aged 36, presented an eruption which consisted of discrete papules and lichenoid and psoriasiform patches all over the body as well as on the face. He also showed tiny petechiae and atrophic-like, wrinkled skin. The mucous membrane of the mouth showed on both sides a thickened whitish ridge and two yellowish lichenoid infiltrations. The condition had persisted for more than a year. It never itched, but the patient complained of profuse perspiration, especially on the face. He had not received any pilocarpine.

DISCUSSION

DR. LEVIN cited a similar case in which the patient was treated with pilocarpine internally and the Alpine rays locally, which caused rapid improvement.

DR. ANDREWS said that a patient had been treated at the Vanderbilt clinic whose eruption had cleared up entirely for the time being under Alpine rays treatment alone.

DR. BECHET agreed with the diagnosis, and in reference to therapeutics reported the complete disappearance of the lesions in an extensive parapsoriasis of the lichenoid type after quartz lamp therapy. The benefit unfortunately was not permanent, as the lesions recurred after an interval of about six months.

PAPULONECROTIC TUBERCULIDS DISAPPEARING SUBSEQUENT TO THE REMOVAL OF A SARCOID-LIKE LESION. Presented by DR. LEVIN.

P. R., a man, aged 45, a native of Ireland, a policeman, had noticed a swelling on the left buttock nine months prior to his admission to the surgical department of the Mount Sinai Hospital. About three months before his presentation, the dermatologic staff had been invited to express their opinion as to the nature of the lesion. He presented at that time a subcutaneous firm tumor 2 inches (5 cm.) in diameter, which was considered as the Darier-Roussy hypodermic type of sarcoid. He also presented about two dozen characteristic papulonecrotic tuberculids on the dorsa of the knuckles, wrists and elbows of both upper extremties, as well as in the region of the left ankle. The surgeons removed the mass from the buttock, and the report on the tissue made by the department of pathology was that it showed a tuberculous structure. Within five days after the operation, it was noticed that the papulonecrotic tuberculids were beginning to fade, and in two weeks there was practically no evidence remaining of these lesions. The patient reappeared about two weeks ago at the dispensary and showed the beginning of a recurrence of the papulonecrotic lesions. Potassium iodid in drop doses was administered, and the lesions were beginning to disappear.

DISCUSSION

DR. LEVIN said that he had presented this case because of the interesting phenomenon of the disappearance of the lesions subsequent to the surgical removal of the large lesion. He knew that the same thing happened in the case of granuloma annulare and also in verrucae. He had no explanation to offer for this curious feature.

DELAYED SYPHILITIC ROSEOLA. Presented by DRS. PAROUNAGIAN and MASON.

J. M., aged 25, a chauffeur, admitted to the Bellevue Syphilis Clinic on Jan. 31, 1925, gave the following history: He was exposed, Sept. 18, 1924, and a sore appeared on the middle of the shaft of the penis (a large scar present) about Oct. 1, 1924. He consulted a physician who administered six intravenous injections of arsphenamin and also mercury intravenously. He said that after the first injection of arsphenamin a rash like measles appeared, which disappeared within two days (Herxheimer?). The present eruption was of the macular type generalized. A number of circinate lesions could be readily detected, and did not itch. The duration was two weeks. Besides the eruption, there was marked swelling of the lymphatics, moist papules on the prepuce and balanitis at the sulcus. The patient indulged in alcoholic beverages. Wassermann specimen was taken but the result had not yet been reported.

TERTIARY NODULOCIRCINATE SYPHILODERM OF PENIS. Presented by DR. PAROUNAGIAN.

W. H., a man, aged 35, who sixteen years before had a genital sore which was treated locally only, two months before presentation developed an oval lesion with superficial ulcerating border. It was on the shaft of penis, partly on the dorsum and lateral aspect. A disfiguring scar from his chancre was present on the glans penis. A Wassermann specimen was taken but the result had not yet been reported.

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## NEW YORK ACADEMY OF MEDICINE
## SECTION ON DERMATOLOGY AND SYPHILIS

*Regular Meeting, Feb. 3, 1925*

FRED WISE, M.D., *Chairman*

HERXHEIMER REACTION.

Dr. Parounagian read by title a paper by Dr. Herxheimer on the Herxheimer reaction, to appear later in the ARCHIVES.

CUTIS VERTICIS GYRATA. Presented by DR. THORNLEY.

Ida G., aged 45, married, said that the lesions on the occiput had existed since birth.

ACRODERMATITIS CHRONICA ATROPHICANS. Presented by DR. ABRAMOWITZ.

Mrs. Sarah K. (from the Gouverneur clinic), aged 36, born in Russia, who had been in this country for twenty years, and who had three children alive and well and had had one miscarriage, had an exostosis in the right frontal eminence. Otherwise her history was negative. She was referred from the surgical department of the Gouverneur Hospital Dispensary to Dr. Thornley's service as possibly having angioneurotic edema. The duration of the skin condition was two years; it began with edema and redness of the left forearm, and had recently extended to the left hand. Both hands showed a slight livid red tumefaction; the left forearm showed a streaky redness and puffiness and a sclerotic band along the left ulnar region. The feet were slightly involved. The rest of the body was not involved. The patient complained of some tingling in the left upper extremity. Thyroid and pituitary medication were being used.

TOXIC ERYTHEMA: PREMYCOTIC STAGE OF MYCOSIS FUNGOIDES? Presented by DR. WILLIAMS.

M. L., aged 34, born in the state of New York of Jewish parentage, first seen on Oct. 30, 1924, said that she had been married for fifteen years, had two children living and well, and had had no miscarriages. Her family history was negative. Two years before, a generalized eruption appeared on her body, apparently a mild form of the condition presented except that it was not "itchy and sore." Six months ago the eruption, which up to that time had been of varying intensity, became severe, and when first seen she had an extensive papulosquamous rash, the individual lesions of which were dull red and very much infiltrated. Most of the lesions were on the trunk, with a few scattered

ones on the extremities, face, scalp and behind the ears. The pruritus was severe. Since the first observation, new lesions had come out, while most of the old ones had persisted in situ. Owing to scratching, it was difficult to state whether or not some of the lesions might have been topped with vesicles, but at no time were vesicles or bullae actually seen. The Wassermann and urine examinations were both negative. A blood count made on Dec. 2, 1914, revealed: white blood cells, 6,200; polymorphonuclears, 67 per cent.; small lymphocytes, 22 per cent.; large mononuclears, 5 per cent.; transitionals, 6 per cent., and eosinophils, 0 per cent.

On Dec. 15, 1924, a blood count revealed: white blood cells, 8,400; polymorphonuclears, 65 per cent.; small lymphocytes, 25 per cent.; large mononuclears, 3 per cent.; transitionals, 4 per cent., and eosinophils, 0 per cent.

A blood smear was negative. Blood chemistry revealed: salts; uric acid, 5.8 mg.; urea, 17 mg.; sugar, 125 mg. The provisional diagnosis was colloid goiter, hypothyroidism, intestinal toxemia (carbohydrate fermentation), dental sepsis, chronic tonsilitis. Two biopsies were reported from the laboratory as showing "toxic erythema."

Treatment consisted of the use of lotions, ointment, external and internal medication and catharsis. Thyro-nucleo-protein, 5 per cent., adreno-nucleo-protein, 10 per cent., and ichthyol enema were prescribed.

The patient also received roentgen-ray therapy during the last few weeks.

DISCUSSION

DR. SCHEER: It is difficult to make a diagnosis. Dr. Traub suggested that the condition might possibly be mycosis fungoides, and that seems most likely.

DR. ABRAMOWITZ: I believe the condition is a severe form of lichen planus with the development of bullous lesions. I noted lesions on the leg and thighs which were pigmented and annular with decided shining papules at the periphery. The severe itching and these annular lesions would seem to lead to that diagnosis.

DR. CHARGIN: I cannot offer a definite diagnosis, but I am opposed to that of lichen planus suggested by Dr. Abramowitz. At first I thought that the patient exhibited lichen planus papules, but on close examination this proved to be an error. The eruption appears more like mycosis fungoides in the premycotic stage—the patchy character of the eruption, the infiltration, the marked itching, the color and the chronicity all point to that assumption.

DR. PISKO: I do not believe it is lichen planus; I think it is a mycotic eczema. The term toxic erythema does not cover the whole picture.

DR. ANDREWS: I have seen eruptions like this in chronic eczema that disappeared without developing into anything more serious. The condition may be mycosis fungoides or a leukemic eruption, but one can not make such diagnosis now, especially as the biopsy specimens showed no evidences of these diseases.

DR. LEVIN: I noted no lesions of lichen planus. Some of the patches were lichenified and infiltrated. The condition may possibly be mycosis fungoides. Clinically the evidence points to a chronic eczema, depending on disturbed protein metabolism. The blood chemistry showed a uric acid content of 6 per cent. I should advise colonic irrigations, low protein diet, forced fluids and the ingestion of atophan.

DR. WISE: I believe that it is a premycotic stage of mycosis fungoides, and suggest the advisability of two or three successive biopsies from different parts of the body, as this is often necessary before a microscopic diagnosis can be

made. The lesions on the back are most suggestive of mycosis fungoides. It does not look like eczema or lichen planus. Roentgen-ray treatment appears to be indicated.

DR. TRAUB: Two biopsies have been made from the lesions on the back, and I shall try to obtain another later. The patient is now receiving roentgen-ray treatment, and I hope to report on it later. She has shown some improvement from the roentgen-ray treatment, although there has been none under any of the other local measures employed.

A CASE FOR DIAGNOSIS. Presented by DR. FELDMAN.

B. R., aged 28, said that she had had the condition presented since childhood. She said that the lesions started with a papule which itched slightly; after scratching, a crust formed, which later fell off leaving a white spot. She had been under observation for a month, during which time the evolution of the lesions had been observed. There was at first a rose-colored, flat papule, which was later covered with small crusts, probably the result of scratching. When the crusts fell off the surface of the papules was somewhat pitted and red, and gradually the white color characteristic of the lesion was developed.

DISCUSSION

DR. GILMOUR: I do not believe that any one can make a diagnosis from the history. The condition seems to be some form of atrophy—possibly from an old acne. It is probably the end result of some former active process.

DR. CHARGIN: I have seen the case before, but I hesitate to offer a diagnosis. Microscopic examination of one of the papular lesions occasionally observed in the case might clear up the diagnosis.

DR. LEVIN: On the back of the right shoulder there was a lentil-sized, polyhedral, umbilicated papule which one would find in lichen planus. The other lesions appear to be the ultimate atrophic remains of papules similar to the one on the shoulder. I regard the case as one of lichen atrophicus.

DR. OCHS: Some new lesions appeared, and in disappearing left these atrophic lesions. The macule became slightly scaly and ended in a depressed scar. The case seems to fit into the category of lichen sclerosus.

DR. PISKO: When I first saw the case I made the diagnosis of lichen atrophicus, but on closer examination that diagnosis seemed wrong. We never see lichen atrophicus with scars so diffuse and so numerous. The patient has had the condition since she was 4 years of age and has shown active lesions while under observation. One would not expect to see a 4 year old child with lichen planus. Also, there are active lesions surrounding the scars. Why did not all the lesions leave scars? All that could be seen was scarring in a group. I believe the scars are pits from some lesions in early childhood.

DR. WISE: The more one analyzes the case, the more difficult it is to make a diagnosis. It does not seem to require deep analysis. The scarring is like that often seen after an acne cachecticorum which has run its course. The patient is a woman aged 28, who has had acne cacheticorum in childhood. She may show an occasional lesion now and then, but what is now seen is the result of the disease which she had had and which is now in abeyance. One would not give it a thought if it were known that she had had acne cachecticorum in young life. It is simply the scarring of acne cachecticorum and should not be considered lichen planus or sclerosus, or any other obscure diagnosis.

Dr. Feldman: I cannot agree with Dr. Wise and others who suggest acne cachecticorum. When the patient was first seen six weeks earlier, there were half a dozen active papules in one group on the back. These were ringed off (with ink) and observed for four or five weeks, the result being that some showed a little crusting, others not; but little by little the surface began to pale down, and as that proceeded, they became white in the center surrounded by a pinkish areola. Meanwhile, several other groups had appeared, one on the shoulder being flat, shiny and angular, somewhat resembling lichen planus. I cannot call it lichen sclerosus, because that has as its characteristic a dilated follicle in the center, which is completely absent in this case. In my opinion, it belongs to the group described by Hallopeau as dermatitis lichenoides atrophicans.

Ulerythema Ophryogenes. Presented by Dr. Levin.

J. G., a woman, aged 62, had had the condition of the eyebrows for six years. The eyebrows at first became slightly reddish, and this was followed by the thinning out of the hairs. The condition was confined to the eyebrows and was characterized by redness and alopecia. This was most marked in the outer half of each eyebrow, where the skin was dark red and the hairs were absent, leaving follicular scars. There was no keratosis pilaris or any evidence of monilothrix.

Erythema Perstans. Presented by Dr. Levin.

Mrs. F. S., aged 26, presented a recurrent pruritic eruption of four weeks' duration. She had had similar lesions during the last four years on the extensor surface of the right elbow. On the front of both legs were several dark red macules and papules. The lesion on the extensor surface of the elbow was the size of a silver quarter-dollar, bluish red and scaly. The lesions on the legs were papular and macular, dark red and suggested the possibility of a mixed phenolphthalein and bromid eruption. The patient had been taking phenolphthalein weekly for about two years. Recently, had taken a dose of bromid occasionally for nervousness.

Dr. Rostenberg: I agree with the diagnosis. The point that interests me most is that one lesion has developed around the vaccination scar on the arm.

Dr. Ochs: I agree with the diagnosis.

Dr. Abramowitz: I do not believe it is a phenolphthalein eruption, although it probably is a drug eruption of some kind; it would be difficult to say which, however, as the patient has taken a number of drugs. It will be necessary to make tests with the different ones she has taken.

Dr. Gilmour: The woman told me that she had taken bromids and also a great deal of phenacetine. I should consider it a drug eruption, but I should exclude phenolphthalein.

Dr. Levin: The patient first appeared at the Mount Sinai Clinic today, and she gave a history of having had the lesion on the right elbow for four weeks. She has had a similar recurrent eruption for the past four years. Phenolphthalein has been ingested frequently during a period of two years. The lesion on the right elbow is characteristic of that observed in phenolphthalein eruptions. The unusual features, however, are the lesions on the legs, which I believe are produced by a combination of phenolphthalein and bromids. At the clinic those who saw the eruption considered it a phenolphthalein eruption.

ARSPHENAMIN DERMATITIS. Presented by DR. PAROUNAGIAN.

Mrs. G. McM., aged 39, born in the United States, was referred to the Bellevue clinic for treatment on Dec. 3, 1924, and gave the following history: She had had considerable trouble with her stomach, for which she was operated on for "gastric ulcer." Her Wassermann report was 3 plus, and after the operation another Wassermann test was 4 plus. Thereupon she was given three neo-arsphenamin, three silver arsphenamin and seven mercuric salicylate injections, from Dec. 3, 1924, to Jan. 16, 1925. On January 19, five days after the last injection of arsphenamin, a general dermatitis appeared, the eruption being itchy and erythematous. The treatment was immediately discontinued, and soothing applications were being made.

DISCUSSION

DR. CHARGIN: I agree with the diagnosis. What treatment has been administered? I would suggest the use of sodium thiosulphate, preferably given intravenously.

DR. ANDREWS: In three cases of arsphenamin dermatitis treated with roentgen rays, with excellent results, the patients were given one-half skin units on successive days until the entire body was exposed to this dose. The cases were even more severe than the one under discussion. There was almost immediate relief of the itching and exfoliation, and involution occurred in about five days. Roentgen rays should be beter recognized as an efficient treatment for this type of dermatitis.

DR. MCCAFFERTY: I recently saw a patient with a beginning arsphenamin dermatitis. All arsenical preparations were stopped, and the patient was placed on sodium thiosulphate. After four injections, given over a period of six days, all itching ceased, and the dermatitis cleared up.

DR. ROSTENBERG: I should use sodium thiosulphate in such a case and should not rely on the roentgen rays alone. The latter perhaps could be used as an adjuvant, especially as a relief for the itching.

DR. ANDREWS: I rely on the roentgen rays alone in these cases, but I have used the other forms of treatment in other cases, and merely wished to point out that the roentgen rays quickly relieve arsphenamin dermatitis. There was no reason, however, that other forms of treatment should not be given in conjunction with the roentgen rays. No changes in the urine were caused by the roentgen rays in the three patients treated.

DR. WOLF: I disapprove of the method of roentgen-ray treatment when there is another specific for a particular condition such as this. In exposing half of the body to half-skin units at one time, the patient is exposed to an added jeopardy; he is already toxic, and with the amount of roentgen-ray therapy indicated, one would destroy the slight leukocytic immunity still possessed. The irradiation would destroy the lymphocytes, and sometimes a marked leukopenia may result. Since we possess a specific in thiosulphate why use something else which will not hasten the process and which will not cause the excretion of arsenic?

DR. SATENSTEIN: This discussion is an instance of theory conflicting with fact. Dr. Andrews has reported the practical results of roentgen-ray therapy, and yet we are told that he should not use it for it must cause damage. To him, it did not matter what therapy was employed so long as the patient was made comfortable.

DR. GOODMAN: I used diethyl-ammonium-diethyl-diothiocarbonate extensively prior to the recent popularity of sodium thiosulphate. It is a white crystalline substance, and is given in solution either intravenously or, preferably, intramuscularly. Sodium thiosulphate has given uniformly good results, with some brilliant results in arsphenamin dermatitis. I do not rely on the drug alone, but put my patients at rest on a diet and forced fluids. I use sodium thiosulphate as a prophylaxis against arsphenamin dermatitis. I have my patients who are on intensive treatment with the arsenicals or mercurials take sodium thiosulphate by mouth, in the hope of avoiding the distressing side reactions in sensitive patients. The value of such a procedure may be properly learned after a great deal of experience. I offer the procedure for general use.

DR. THORNLEY: I have seen several cases of dermatitis exfoliativa, two of them due to arsenic and the other to mercury. As far as the discomfort of these patients is concerned, a very old and simple remedy will greatly relieve the itching. The patient is placed on a rubber sheet with an ordinary cotton sheet over it, and is given a small bag full of freshly prepared starch and told to sop himself with it continually. This will give great relief and permit a night's rest.

DR. ABRAMOWITZ: There are other effective remedies besides sodium thiosulphate. Recently, Dr. Greenbaum of Philadelphia recommended thiosinamin. He had used it with good results. Others have seen results with a calcium preparation. It also must not be forgotten that some patients get well when only general eliminative and supporting measures are used. Sulphur is an arsenic detoxicating agent, but we do not know all about its action in the body, especially when given intravenously. As for roentgen-ray treatment, it is well known that it acts beneficially in dermatitis exfoliativa of other types, and I do not see why it cannot be used in conjunction with other methods of treatment.

DR. WISE: The idea that sodium thiosulphate is a specific remedy for arsenical dermatitis is fallacious. The German literature emphasizes the fact that although the thiosulphate causes excretion of the arsenic, it does not necessarily clear up the skin, so that Dr. Andrews' suggestion of using the roentgen ray, providing it was not harmful, seems reasonable.

DR. PAROUNAGIAN: My experience with thiosulphate has not been successful, and I therefore discarded the use of this drug. I have had success with diethyl-ammonium-diethyl-diothio-carbonate; in addition, I treat these patients the same as I do any others with dermatitis with soothing applications and thorough elimination through the bowels and kidneys. I still maintain that most of these cases of arsphenamin dermatitis are due to faulty preparations.

MORPHEA GUTTATA. Presented by DR. CHARGIN.

M. B., aged 19, unmarried, a factory worker, about four months previously accidentally discovered that she was suffering from an eruption located on the upper part of the back. Just how long it had existed, it was impossible to state. It consisted of a triangular patch over the left scapula. The primary lesion was of the size of a millet seed and mother of pearl color. The lesions were on a level with the surrounding normal skin, were mostly intrafollicular, and the skin was almost normal to touch. The major patch was made up of many of these primary lesions aggregated into a single triangular area about 2 inches (5 cm.) from base to apex. This patch was slightly below the level of the skin, slightly scaly, and almost normal to the touch. There were many

keratotic plugs at the upper angle of the patch. There were no subjective symptoms. Except for this single area, the body was normal.

DISCUSSION

DR. GILMOUR: I agree with Dr. Chargin that the condition is morphea, but I do not think it is morphea guttata.

DR. LEVIN: I believe the condition is an atrophy, the end result of a patch of morphea and not of morphea guttata.

DR. ANDREWS: It looks like lichen planus atrophicus.

DR. GOODMAN: I believe the lesions manifested by the patient are an end process of some other condition rather than an active morphea. I do not think the lesions fit into the group of scleroderma guttata, in which the lesions are more likely to be disseminated over the entire aspect of the chest or back than disseminated as in this patient. I believe the lesion could be explained on the basis of a previous eruption, as lichen planus.

DR. ABRAMOWITZ: Last year I presented a patient with a similar eruption located in the same area as having a case of dermatitis lichenoides atrophicans, as described by Csilak in "Ikonographia Dermatologica" of 1909. There was no sign of lichen planus, just shiny white spots fused into one patch, with a few outlying lesions.

DR. WALZER: I do not believe the lesions are morphea guttata, on the following grounds: (1) The lesion is of only four months' duration; (2) there is no violaceous border; (3) there is no "scleroderma" hardness; (4) the surface is studded with many minute pits — the patent follicular openings; (5) the presence of hard scales in the upper part of the patch, which are hard to remove and apparently project from the openings; (6) the patch is soft and can be wrinkled easily. I suggest the lifting of some of the patch with the point of a needle. If moist, it is not scleroderma. I am inclined to make a diagnosis of lichen atrophicus.

DR. MCCAFFERTY: I believe the case is one of morphea guttata. There are discrete, white, split-pea sized atrophic lesions. Some of them have coalesced. I can see no evidence of papules either in the group or in the periphery.

DR. SATENSTEIN: I can see no evidence of atrophy; I can see no scar tissue, only a change in color. I cannot understand why the condition should be classified as morphea; it does not seem to be an active process, but rather an end stage.

DR. WISE: This type of lesion is diagnosed under the name of dermatitis lichenoides chronica atrophicans, which disease, of course, has nothing to do with lichen planus. This patient never had any lichen planus lesions or anything suggestive of it. At its present stage the disease is represented by a dead whiteness of the skin totally different from morphea, which is ivory yellow. Morphea sometimes becomes atrophic in the end stage; then it resembles this lesion but has not the dead white color. During the past year seven or eight similar cases have been recorded in the three dermatologic societies of New York.

DR. CHARGIN: Dr. Wise, do you think it is a scleroderma or lichen planus?

DR. WISE: I think it belongs to the scleroderma group.

DR. CHARGIN: I am of the opinion that the condition is not lichen planus and has no connection with that disease. This patient, at no time since being under observation has shown lesions resembling lichen planus. The fact that none

of the lesions shows a pink border does not speak against the guttata type of scleroderma. The primary lesion in the case was a small, ivory white spot, intrafollicular mostly, and the large patch is evidently made up of many of these smaller primary patches. The follicular plugs observed are quite common in this variety of morphea. I do not think it matters what name is given to this clinical entity, so long as it is understood that it belongs to the scleroderma and not to the lichen planus group.

CONGENITAL SYPHILIS PRESENTING MOST PRONOUNCED EXAMPLE OF "TUBERCLE OF MIBELLI" ON THE MOLARS. Presented by DR. PAROUNAGIAN.

George L., aged 8, was referred to the Bellevue clinic from the eye department for treatment of an interstitial keratitis; he also had a 4 plus Wassermann test. The mother was a patient at the clinic, had tabes dorsalis, showed a 4 plus Wassermann test, and had been under treatment since March, 1923. The father also had been examined, and his Wassermann test on Jan. 27, 1925, was reported to be 4 plus. There was no question about the diagnosis of heredity, and the main object in presenting the patient was to demonstrate the condition of the teeth.

DISCUSSION

DR. ABRAMOWITZ: I believe that Dr. Parounagian was in error in speaking of the tubercle of Mibelli instead of Carabelli.

DR. PAROUNAGIAN: The tubercle was described by the German writer as "Mibelli," and the French call it Carabelli. The case is a good example of the condition represented, and I believe that it is present more frequently than the Hutchinson teeth in syphilitic patients. The father, mother, brother and the patient himself all had 4 plus Wassermann tests, and in addition to the interstitial keratitis the patient has a high palate arch, an imperfect hair line, a protruding forehead, and a box-shaped skull.

EXTENSIVE GUMMA OF BOTH LEGS. Presented by DR. PAROUNAGIAN.

Mrs. Irene D., (previously presented at the Manhattan Dermatological Society, in January, 1925), aged 33, admitted to the Bellevue clinic on Dec. 31, 1924, with a past negative history, had a lesion on the right leg which first appeared four years previously, that on the left leg being of one year's duration. The ulceration on the left leg extended from the knee to the ankle; the lesion on the right leg was much smaller and was just above the ankle. There was considerable scarring on both legs.

The patient had received four injections of silver arsphenamin and five of mercury, and showed marked improvement. She had a son, 4 years old, who showed certain signs which might suggest a congenital case, i. e., high arched palate, imperfect hair line and certain irregularities of the teeth. The patient's Wassermann test was 4 plus; those of the husband and the child were negative.

DISCUSSION

DR. CHARGIN: This case shows excellent results.

DR. GILMOUR: I have seen marked improvement since the child was shown before the Manhattan Society.

DR. LEVIN: When Dr. Parounagian presented the case before the Manhattan Society, the members were not so positive that rapid improvement would be shown. The improvement is certainly remarkable for the time the patient has been under treatment.

DR. PAROUNAGIAN: The patient received no treatment for a week before presentation, or the improvement would have been more marked.

EXTENSIVE SYPHILITIC DESTRUCTION OF THE MOUTH. Presented by DR. PAROUNAGIAN.

W. D., (first presented, at the December, 1924, meeting of the Section), aged 26, had a genital infection in September, 1923. The chancre became gangrenous, and most of the organ was destroyed. In spite of energetic treatment with arsphenamin, neo-arsphenamin, mercury, iodids and bismuth, the destruction of the mouth progressed. Finally, silver arsphenamin and elixir of iron, quinin and strychnin, and two weeks in the country produced a marvellous result.

DISCUSSION

DR. SATENSTEIN: When I saw the case at the previous presentation, my first impression was that it was a case of syphilis plus a secondary infection. Dr. Parounagian's statement that tonics had been an important part of the therapy probably accounted for the remarkable change.

DR. WISE: Has the question of Vincent's infection been eliminated?

DR. PAROUNAGIAN: I have never seen a case of Vincent's infection showing such a large amount of destruction. I am not sure which drug deserves credit for the improvement, but within two or three days after taking the iron, quinin and strychnin the condition began to improve.

XANTHOMA TUBEROSUM MULTIPLEX. Presented by DR. LEVIN.

This case was previously presented at the New York Dermatological Society, January, 1925, by Dr. H. J. Schwartz.

DISCUSSION

DR. WOLF: The pea-sized lesions on the tendon sheaths on the back of both hands, affecting the middle finger on each side are unusual. I wonder whether these are xanthoma tubercles or whether they represent an independent condition, possibly traumatic.

DR. WISE: At the last meeting of the New York Dermatological Society, Dr. Whitehouse presented a case of generalized xanthomatosis in which nearly the entire skin was infiltrated. The patient had been presented previously some years earlier, and this second presentation was to show the results of treatment by Riehl of Vienna by the injection of iodipin. The condition had improved greatly as the result of this treatment. Whether the same treatment would be beneficial in xanthoma tuberosum multiplex, I do not know.

DR. LEVIN: There was no sugar in the urine. The blood sugar was only 0.1 per cent. There were no signs of diabetes. He regarded the lesions on the tendon sheaths as identical with those on the skin. The patient was receiving iodipin.

DERMATITIS VEGETANS ON A SYPHILITIC BASE: SECONDARY SYPHILIS WITH TERTIARY LESIONS DURING TREATMENT AND RECALCITRANT. Presented by DR. PAROUNAGIAN.

Frank V., aged 25, born in the United States, a chauffeur, when first seen on July 8, 1924, said that he had had a chancre on the shaft (scar present) seven months before, and had been treated by a private physician who gave

him eight injections of arsphenamin and fifteen of mercury, the last treatment being received three weeks before admission. He then had mucous patches on the left tonsil and sores on the arms and hands. His Wassermann test on July 8, 1924, was 4 plus. He was given eight injections of silver arsphenamin and fifteen of mercuric salicylate. While under treatment, he developed new gummatous lesions, for which reason nine injections of arsphenamin and three more of mercury were administered; these, however, failed to clear up the large gummatous lesion on the left elbow. This lesion was about 1½ inches (3.8 cm.) in diameter, was circular in shape and had a corona about ¼ inch (0.6 cm.) in width, studded with small scaly papules, and the central portion was elevated and warty in appearance.

Since his admission, three more Wassermann tests had been made, which were reported 4 plus. He had also received iodids by mouth, and elixir of iron, quinin and strychnin. There were several characteristic scars on the upper and lower extremities to confirm the diagnosis of syphilis.

DISCUSSION

Dr. Chargin: I have seen only a few cases of dermatitis vegetans, but these in every instance were located either in the axilla or genital or genito-crural regions, in other words, where the skin came in apposition. The case under discussion does not seem to correspond to the cases of dermatitis vegetans I have seen. It may be blastomycosis or a drug eruption due to iodids or bromids. Although the patient admitted taking iodids, this drug was not taken until after the lesion appeared which, of course, speaks against the condition being due to iodids.

Dr. Pisko: The idea of dermatitis vegetans did not enter my mind. I think it is simply a superficial gumma.

Dr. Satenstein: I have never seen anything just like this in dermatitis vegetans; it impressed me as being due to some other process, possibly a tuberculous process.

Dr. Gilmour: Dr. Parounagian presented a case of a woman showing extensive gummas with exuberant granulations on the leg, and I can conceive of this being granulomatous tissue on a gumma as a base. It is drier than the other lesion, but it seems to be just plain granulomatous tissue, possibly influenced by the treatment.

Dr. Andrews: I believe the matter can be settled only by a biopsy. Against blastomycosis are the absence of purulent exudation, sinuses or verrucous lesions. It is not apt to be so firm. It is not typical of blastomycosis, and the duration of the condition is against tuberculosis cutis.

Dr. McCafferty: Since the Wassermann reaction was 4 plus, the lesion is probably a frambesiform syphilid, as it has a characteristic raspberry appearance. The white atrophic lesions scattered over the body are characteristic of tertiary lesions which have undergone involution, and are similar to those frequently seen in patients with tertiary syphilis.

Dr. Abramowitz: Dr. Parounagian presented the case as dermatitis vegetans on a syphilitic lesion. I am inclined to agree with that diagnosis. Such papillomatous syphilids occur in tertiary as well as in secondary lesions and are usually single. The location on the elbow is unusual.

Dr. Wise: I think that Dr. McCafferty's statement covers the subject. There is no reason why there should not be a syphilitic frambesiform lesion on the elbow; the only way to eliminate this diagnosis is to prove that the condition

is not blastomycosis or tuberculosis superimposed on syphilis. If the lesion were on the upper lip or scalp, one would not have hesitated to make the diagnosis of frambesiform syphilid.

DR. PAROUNAGIAN: Judging by the scars on other parts of the body, at first sight, I would say that the lesions are of syphilitic origin. I presented this simply as an interesting case. So far as the history is concerned, the man had the lesions long before he came to the clinic, and had received a number of injections of arsphenamin and mercury. No effort was made to remove the lesions before presenting the case. The lesions will probably heal under local antiseptic applications. I shall make a report later.

LEUKODERMA SYPHILITICA WITH UNUSUAL FEATURES. Presented by DR. PAROUNAGIAN.

T. H., aged 44, born in the United States, a widower, a clerk, who said that he had not had syphilis, had contracted gonorrhea about three years prior to presentation. He said that he had always been in good health, and did not recall having had any kind of skin disease. So far as he could recall, the pigmented condition of the neck dated back about a year and a half. The lesions were located on the sides and back of the neck, and consisted of a number of depigmented spots of varying size with areolae of hyperpigmented patches. The depigmented areas did not resemble the usual mere discoloration, but appeared to be atrophic scarlike lesions. A Wassermann test on Jan. 12, 1925, was reported to be 4 plus, and another on January 27, without treatment, was reported 3 plus. Assuming that the gonorrheal infection three years previously was meatal or urethral chancre, this unusual pigmentation appeared a year and a half after the supposed infection.

DISCUSSION

DR. WISE: Syphilitic leukoderma is supposed to be much more prevalent in women than in men, but now and then it is seen on men.

DR. GOODMAN: The leukomelanoderma colli of Hardy (described in 1853) was a symptom of the secondary period of syphilis. The alternation of light and dark areas in a perfect network was not attended by scarring. The patient presented by Dr. Parounagian had scars. The arrangement of the pigmented and depigmented areas was not symmetrical. I do not question the diagnosis of syphilis nor that the cutaneous lesions on the neck are part of this syphilitic infection, but I cannot admit the manifestation in the specific, if not the pathognomonic, group of leukoderma colli of syphilis.

DR. WISE: I do not consider the lesions to be those of syphilitic leukoderma, but I regard them as a form of mottled depigmentation of unknown cause.

DR. PAROUNAGIAN: I admit all that has been said about atrophy and the appearance of scar tissue, but the picture is unusual. I did not regard the condition as a true syphilitic leukoderma when I first saw the patient. There was no history of gumma, only one of gonorrhea about three years previously, and no evidence of syphilis could be detected. When the Wassermann test was reported 4 plus on two occasions, there was no other diagnosis to be considered. The appearance of the lesions is unusual; the occurrence, one and one half years after the possible infection (assuming that the gonorrheal infection might have been urethral or meatal chancre) is too long, as most of these cases develop within six months or a year after the infection; and the

atrophy-like appearance is uncommon, as true syphilitic leukodermas are nothing more than mere disappearance of pigment in spots and hyperpigmentation in others. For these reasons I presented the case. I shall treat the patient and report the results later.

SUPERINFECTION IN A NEUROSYPHILITIC PATIENT. Presented by DRS. PAROUNAGIAN and MASON.

George J., an Armenian, aged 48, came to the Bellevue clinic on June 17, 1924, with the history that twenty-four years previously he had had a sore on the glans penis, which was treated locally and healed promptly. As he had severe pains in the joints and experienced difficulty in walking, he applied to the clinic for treatment. The Wassermann test was negative, but on account of fixed pupils and irregularity of reflexes, he was given eight injections of silver arsphenamin and eleven of mercuric salicylate. While under treatment, he called attention to a sore which had developed on the genital two days previously (Jan. 25, 1925). The examination revealed a typical chancre at the sulcus, indurated, and the darkfield examination for spirochetes was positive on two occasions (January 27 and 31, 1925). The Wassermann test on January 29 was negative. The patient was questioned regarding recent exposures, and said that he had been exposed two months before, and the last exposure was four days ago.

DISCUSSION

DR. ANDREWS: Since the patient had signs of atrophy of the dorsal column at the time of his second injection, it cannot be positively maintained that he had an active syphilis at the time of the second infection. The Wassermann test was negative, and the patient merely showed the end-results of a previous syphilitic infection. In my opinion, syphilis as well as any other disease, occasionally cures itself. This might just as well be a case of reinfection as a case of superinfection.

DR. SCHEER: It is not the end result, but tabes is syphilis.

DR. ANDREWS: I agree with Dr. Scheer that syphilis causes tabes dorsalis; but I wish to point out that in this patient a diagnosis of active syphilis has been assumed because of atrophy and scarring in the central nervous system. The presence of the clinical signs alone is not sufficient to warrant the conclusion that an active syphilis is present.

DR. LEVIN: I take exception to a statement made by one of the members that syphilis is incurable. Dermatologists and syphilologists have accepted certain criteria as establishing a cure, and if a patient meets these he should be accepted as cured. The patient may be cured of syphilis and yet have dormant spirochetes in his system; just as a patient may be cured of quinsy and yet have dormant staphylococcus or streptococcus; the same is true of typhoid and other diseases. The Section should not go on record as saying that syphilis is not curable. It is possible to say that it is cured. We have criteria and should abide by accepted standards.

DR. WALZER: I do not think that Dr. Levin should compare an infection like typhoid to a chronic disease like syphilis. As to the question of curability in these diseases, there is nothing in common. I strongly oppose calling this a case of "superinfection," or, as some members have suggested, "re-infection." That the patient had syphilis, there is no doubt; but since there is no absolute way of telling whether he was cured, why call it a "re-infection"?

About six or seven years ago, Warthin of Ann Arbor published a series of necropsies on known syphilitic patients that were supposed to have been cured. They were clinically and serologically free for a long period. Dr. Warthin isolated the spirochetes. Again, it has been shown that the scars of many chancres harbor spirochetes for many years. With these facts in mind, suppose that this patient had irritated an old chancre scar. This reactivated the spirochetes present in the scar, with the result that a syphilitic ulceration developed. Therefore, I believe that this case is simply a syphilitic ulceration in a syphilitic patient on an old chancre scar.

DR. ROSTENBERG: The problem of reinfection is difficult to prove; but I cannot see why a lesion looking like a primary sore and appearing on an old syphilitic scar cannot be called a reinfection, as such a scar would certainly not show any evidence of syphilis any more. There was another interesting feature involved in this case. If we accept the possibility of more than one strain of spirochetes, one causing an involvement of the cerebrospinal axis only, the other producing primarily skin and mucous membrane manifestations, then this man, suffering from tabes, could have been infected this time with the latter variety of spirochetes.

DR. LEVIN: Warthin did not cultivate the spirochetes from the lesions. The spirochetes were recognized morphologically in tissue from postmortem material. Some of the patients had been cured of syphilis.

DR. ABRAMOWITZ: I understand that the lesion appeared while the patient was receiving injections of mercury. This is interesting in view of the fact that the French are reporting some remarkable results in the prophylactic use of phenylarsenic.

DR. PAROUNAGIAN: The relation of syphilis to tabes is like the building that took fire; even though the fire was extinguished, the resulting destruction was there. The patient had tabes, and for that reason it was called superinfection rather than reinfection. I do not agree with those who say that syphilis is not curable, but the patient must be treated early and thoroughly. As to the condition developing while under treatment with mercury injections, it was identical with the case of reinfection I presented at the January meeting, about which Dr. Pollitzer expressed some doubt. This fact would lead one to believe that mercury is not an effective prophylactic agent. The theory of spirochetes coming to light after many years and producing a new chancre as the result of some irritation sounds like a fairy tale. One may get a "chancre redux" or gumma at the site of an old chancre, but a new chancre by irritation is an unproved theory. At the Bellevue clinic, on admission of a patient, the lesions, their locations, etc., are carefully recorded. For example, if a patient has an anal chancre, roseola, adenopathy, mucous patches, and a 4 plus Wassermann test, all are noted; and if after receiving a thorough course of antisyphilitic treatment he shows repeated negative Wassermann reactions and is free from symptoms and lesions for a certain number of months or years, is then exposed and in the usual time returns with a genital chancre, with a positive dark-field, negative Wassermann test and no other manifestations of syphilis, and in the course of six or eight weeks the Wassermann test becomes positive and other secondary manifestations appear, that is called a reinfection, not a chancre due to "irritation."

OSCAR L. LEVIN, M.D., *Secretary.*

## MINNESOTA DERMATOLOGICAL SOCIETY

*Feb. 4, 1925*

G. M. Olson, M.D., *Presiding*

Macroglossia with Transitory Benign Plaques. Presented by Dr. Michelson.

A youth, aged 18, with a negative past history, was presented because of an extreme enlargement of the tongue. When the tongue was protruded it was difficult to realize that it could be retracted within the oral cavity. At the sides there were exfoliated circular plaques of red appearance, with marked heaping up of the epithelium at the periphery. The patient said that there was no change in the sensations of the tongue.

Pemphigus. Presented by Dr. Shapiro.

A. G., a man, aged 68, had a lesion of three months' duration on the tip of the tongue, extending backward on the left side to the dorsum and on the under surface. The lesion was fairly well demarcated from the surrounding mucosa. It had the appearance of a glistening, reddish, smooth area. There was no ulceration, no vesiculation, no bleeding, no infiltration. The condition was chronic. The patient had had his first attack five years before, that lesion involving the inner surface of the lip. He was seen three years ago with typical vesicles of pemphigus in the mouth.

DISCUSSION

Dr. Olson: I agree with Dr. Wright's diagnosis of drug stomatitis or glossitis. The lesion on the tongue appeared subsequent to the use of new false teeth or plates made of red rubber. Red rubber contains mercury.

Cavernous Angioma. Presented by Dr. Shapiro.

B. L. S., a girl, aged 6, presented a condition which had been present since birth. It was located on the right side, between the nipple and the shoulder, under the skin. There was a round soft tumor, movable, not tender, seeming to be composed of a group of blood vessels. Some of these blood vessels could be seen as bluish lines through the skin. The size of the lesion was that of a small peach. It was not attached to the skin or to the muscles. There was some degree of telangiectasia.

DISCUSSION

Dr. Shapiro: This case was presented mainly for suggestion as to therapy. I believe that radium should be used.

Dr. Sweitzer: These large angiomas are likely to cause atrophy of the bone. One of this size should be treated. Radium carefully given would cause it to shrink away.

Schamberg's Disease. Presented by Dr. Michelson.

A boy, aged 11 years, said that as long as he could remember he had had three or four areas on the tibial surface of both legs. He was presented because of these areas. The plaques were somewhat irregular in outline, of a yellowish red which was not of uniform denseness but which showed stippling at the periphery. The patient said that he had a brother 18 years of age who had a

similar condition. There was no itching nor any change of the epithelium, except possibly slight scaling.

HYPERNEPHROMA. Presented by DR. SWEITZER.

A patient, aged 50, was operated on at the Mayo Clinic for hypernephroma twelve years before. In 1923, a swelling occurred on the left ulna, and the arm later was amputated. The patient presented numerous tumors on the scalp, varying in size from that of a marble to that of a hen's egg. The tumors were round and hard. Several tumors were present on the body. Biopsy showed hypernephroma.

DISCUSSION

DR. SWEITZER: I have a very nice slide of this. The patient was the first one that I saw, but I understand from Dr. O'Leary that the condition is quite common at the Mayo Clinic. I shall get a biopsy of one of the tumors on the scalp and report on it later.

DR. O'LEARY: I have seen four or five children, the eldest 8 years of age, with kidney tumors and metastases in the bones and the skin. Two of these cases were eventually shown to be of the neuroblastoma or cytoma type rather than hypernephroma or carcinoma of the kidney. The scalp involvement in these children was secondary in each case to the involvement of the skull, as shown by the roentgen ray. The absence of metastases in the skull, in the case presented by Dr. Sweitzer, made it of exceptional interest.

SCROFULODERM GUMMOSA, ERYTHEMA INDURATUM, PAPULONECROTIC TUBERCULIDS ASSOCIATED WITH TUBERCULOUS PERITONITIS. Presented by DR. MICHELSON.

A woman, aged 56, married, with one living child 22 years of age, said that she had been perfectly well until two years before, when lesions developed on the calves. They began as deep-seated nodules, and the skin over them soon became purplish. Later scaling developed, then crusting and ulceration. Nodes developed in the neck, near the sternal-clavicular junction, which soon broke down and exuded a thin serous pus. Some necrotic lesions also developed at the elbows and the tips of the fingers. She had lost 30 or 40 pounds (13.6 or 18.1 kg.) in weight, and recently had noticed considerable distention of the abdomen, with tenseness. This had been diagnosed as tuberculous peritonitis by an internist. The case was exhibited because it strikingly brought out the fact that cutaneous tuberculosis might develop in advanced years.

PAPULONECROTIC TUBERCULID. Presented by DRS. IRVINE and TURNACLIFF.

A girl, aged 19, for eight months had had papulonecrotic tuberculids over the backs of the fingers and hands, with numerous old scars on the forearms. She had tuberculous glands of the neck removed eight years before. She had received three injections of sulpharsphenamin—0.2, 0.3 and 0.4 gm.—at presentation the lesions on the fingers were increased in size and tenderness, and one new inflamed gland had appeared on the neck.

DISCUSSION

DR. TURNACLIFF: The patient should be sent back to Dr. Felden, who had taken care of her before, as his results were better. She appeared at the dispensary one day and wanted something further done. They began treatment with sulpharsphenamin, and after the second injection she said the tuberculids

were worse; the glands in the neck also were worse. Whether this has anything to do with the medication, I do not know.

DR. FELDEN: This patient came in with multiple pustular lesions on both forearms and hands, showing a clinical picture like that of an ordinary impetigo in a case of scabies, but the few accompanying discrete brownish-red, pinhead-sized or larger subcutaneous nodules, together with the small atrophic depressed scars, and, as a further aid, the conspicuous gland involvement and scars on the neck, made it possible to diagnose papulonecrotic tuberculids, probably complicated by a secondary staphylococcic infection. The lesions cleared up slowly under treatment with red mercury-sulphur ointment combined with ultraviolet and roentgen-ray treatment. The patient did not show any active lesions when I dismissed her.

DR. O'LEARY: I have seen a number of patients in whom the cervical glands were temporarily more enlarged while receiving arsphenamin in the treatment of tuberculids. Arsphenamin is a minor factor in producing this flare-up, and more frequently foci of infection, as noted in the teeth and tonsils, are responsible for the reaction. I suggest the removal of all foci and the continued use of arsphenamin, giving ten injections instead of the usual six or eight. In the group showing tuberculids and cervical adenopathy, it is, as a rule, not necessary to excise the glands if the patient receives arsphenamin treatment.

ONYCHOLYSIS PARTIALIS. Presented by DR. MICHELSON.

A chambermaid, aged *24*, said that for the past six months the nail plates had been loosening from their beds, and that now a piece of paper could be slipped under each nail, in some almost to the limits of the plate, while in others the looseness was only at the sides.

PRURIGO NODULARIS. Presented by DR. SWEITZER.

A woman, aged *32*, had had the disease for eight years. The arms and legs showed hard nodules, most of them covered with normal skin; some lesions were slightly verrucous. The palms showed pitting. A few lesions were present on the forehead. The condition itched severely.

DISCUSSION

DR. FELDEN: This was one of the classical pictures of this disease, and I believe that any one who has ever seen a case of this type will never forget it. This case shows splendidly the multiple firm nodules with the hyperkeratotic and warty surface; although they resemble somewhat the lichen planus verrucosus, these two conditions must be differentiated. This dermatosis was first described by Hardaway as "multiple tumors of the skin accompanied by intense itching," and is now known in all American textbooks as prurigo nodularis, while in European dermatology the name lichen obtusus corneous or tuberosis cutis pruriginosa Herxheimer is more common. Urticaria perstans verrucosa is probably identical with it. I have seen two cases before, and both were obstinate and persistent. The roentgen ray relieved the itching to a certain extent temporarily, and high concentrated chrysarobin applications gave some relief. Freezing with carbon dioxid made some of the nodules disappear permanently.

DR. SWEITZER: This is about as extensive a case as I have ever seen. Pitting is present on the palms. The patient has had this condition for eight

years and has not received any particular benefit from treatment. She said, however, that attention to the bowels, as regards correction of constipation, had relieved the itching more than anything else.

PAPULAR DERMATITIS. Presented by DRS. IRVINE and TURNACLIFF.

A woman, aged 42, presented over the neck, shoulders and upper arms, small discrete papules, some of which had glistening tops but not the characteristic color of lichen planus. The lesions had started on the neck ten days previously and had gradualy extended.

DISCUSSION

DR. O'LEARY: This is an interesting example of the papular type of pityriasis rosea, and I cannot convince myself that it belongs in the lichen planus group. The patient gave a history of having had a permanent plaque on the upper right arm for at least a week previous to the appearance of the other lesions.

A CASE FOR DIAGNOSIS. Presented by DR. TURNACLIFF.

A man, aged 27, had a protruding firm subcutaneous tumor in the right groin, about the size of a walnut. The tumor had developed within the past year, and the base of it had extended peripherally so that it felt like the flat base of a pedestal.

(NOTE.—Dr. Michelson later reported that the pathologic diagnosis was cellular fibroma.)

EN PLAQUE TYPE OF PARAPSORIASIS. Presented by DRS. IRVINE and TURNACLIFF.

E. M., a man, aged 56, showed pinkish, slightly scaly, irregular sized and shaped plaques over the trunk and arms. The lesions had been present since last July without being changed by any treatment which had been used. When first seen, the question of a premycotic eczema had been considered as well as the plaque type of parapsoriasis, but observation seemed to confirm the latter diagnosis.

ANGIOMA OF THE UPPER LIP. Presented by DR. MICHELSON.

A boy, aged 9 years, had an angioma about the size of a walnut, which was only visible when the upper lip was everted. The lesion was situated on the mucosal side. The case was presented with a view of obtaining therapeutic suggestions.

DISCUSSION

DR. SWEITZER: I have had considerable experience with angioma of the lip. One can fix the radium tube on nicely, and the reaction is underneath, so that the resulting scar will not show. It is a good idea to put a little gauze on for distance screening. I believe this growth will shrink out. I would not give an excessively heavy dose at first, but treat it twice perhaps instead of once. Eventually one can obtain shrinking without causing the patient much inconvenience. Probably a 50 mg. tube will work nicely.

EPITHELIOMA ON NOSE. Presented by DR. MICHELSON.

A man, aged 56, presented because of a lesion at the ala of the nose, had a shallow ulceration with an adherent brownish crust. Removal of the crust

showed a granular base which bled easily. The border of the ulceration had a distinct rolled, translucent, pearly appearance, with numerous small vessels coursing over the border.

DISCUSSION

DR. SWEITZER: This type of epithelioma can best be treated with radium. An epithelioma on the temple treated with radium later recurred because it was not treated beyond the edges, which shows the futility of trying to protect the skin around it. Some use small pieces of lead to protect the skin, but the longer I treat these patients the more anxious I am to irradiate beyond the edge of the tumor, and the more likely I am to have better results. The more cases I treat, the less I protect, and I have had no recurrences.

DR. IRVINE: There is one point about the question of treating these lesions beyond the edge that has not been brought out, and that is that unscreened radium can be used on the active part and screened radium beyond the edge. In that way one avoids much surface reaction and much scarring.

SCHAMBERG'S DISEASE. Presented by DR. SWEITZER.

A young man presented cayenne-pepper-like subcutaneous pigmented lesions on the left ankle.

DISCUSSION

DR. SWEITZER: Schamberg's disease was diagnosed. There were several lesions on the leg. The middle part of the lesion was due to pus infection after an injury, but this rapidly subsided and then we were able to see around the edge of this, these cayenne-pepper pigmented areas scattered over the ankle.

D. D. TURNACLIFF, M.D., *Secretary.*

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